



# AMERICAN FORESTRY

AN ILLUSTRATED MONTHLY MAGAZINE

Devoted to

FORESTS AND FOREST LIFE

VOLUME 29

*June, 1923*

NUMBER 354

The Blazed Trail

Spare the Currant and Spoil the Pine

Trips In the Empire State

The Forest Limited

Pine On the "Eastern Shore"

Flowers of the Lower Rio Grande

"Hearts Content"

# The American Forestry Association

Washington, D. C.

## OFFICERS OF THE AMERICAN FORESTRY ASSOCIATION 1923

### President

HENRY SOLON GRAVES, Yale University, New Haven, Connecticut

### Vice-Presidents

JOHN W. BLODGETT—Michigan  
President, National Lumber Mfrs.' Assn.

RICHARD F. BURGESS—Texas  
President, Texas Forestry Association

GEORGE M. CORNWALL—Oregon  
Publisher, The Timberman

DR. HENRY S. DRINKER—Pennsylvania  
President, Pennsylvania Forestry Association

DAVID L. GOODWILLIE—Illinois  
Chairman, Forestry Committee, United States  
Chamber of Commerce

ANSON C. GOODYEAR—New York  
President, Great Southern Lumber Company

MRS. WARREN G. HARDING—Ohio

BOLLING ARTHUR JOHNSON—Illinois  
Publisher, Lumber World Review

WILLIAM KENT—California  
Tariff Commission

A. W. LAIRD—Idaho  
President, Western Forestry and Conservation  
Association

THOMAS H. OWEN—Oklahoma  
President, Oklahoma Forestry Association

FILIBERT ROTH—Michigan  
Dean of Forestry, University of Michigan

HARVEY N. SHEPARD—Massachusetts  
President, Massachusetts Forestry Association

HON. B. H. SNELL—New York  
Member of Congress from New York

BONNELL H. STONE—Georgia  
Chairman, Georgia Forestry Committee

LOU D. SWEET—Colorado  
President, Colorado Forestry Association

W. D. TYLER—Virginia  
President, Southern Forestry Congress

HERMANN VON SCHRENCK—Missouri  
President, Missouri Forestry Association

HON. JOHN W. WEEKS—Massachusetts  
Secretary of War

MRS. T. G. WINTER—Minneapolis  
President, Gen. Federation of Women's Clubs

### Treasurer

ROBERT V. FLEMING, Vice-President, Riggs National Bank, Washington, D. C.

### Assistant Treasurer

IORWERTH JOHN ROBERTS

### Executive Secretary and Forester

OVID M. BUTLER, 914 Fourteenth St., Washington, D. C.

### Business Manager

C. V. MAUDLIN

### Board of Directors

W. A. BABBITT, 1923—Indiana  
American Wood Turners' Association

ELBERT H. BAKER, 1925—Ohio  
American Newspaper Publishers' Assn.

ELBERT F. BALDWIN, 1923—New Jersey  
Editor, The Outlook Magazine

ROBERT P. BASS, 1924—New Hampshire  
Ex-Governor of New Hampshire

NELSON C. BROWN, 1923—New York  
Forestry Instructor, Syracuse University

F. W. BESLEY, 1925—Maryland  
State Forester of Maryland

W. B. GREELEY, 1926—District of Columbia  
United States Forester

GEORGE S. LONG, 1927—Washington  
National Lumber Manufacturers' Association

GEORGE HEWITT MYERS, 1923—Washington, D. C.

GEORGE D. PRATT, 1927—New York  
Former New York Commissioner of Conservation

JOSEPH HYDE PRATT, 1923—North Carolina  
North Carolina Geological Survey

GEORGE W. SISSON, JR., 1925—New York  
American Paper and Pulp Assn.

E. A. STERLING, 1926—New York  
Forest Engineer

J. R. SWIFT, 1923—Pennsylvania

WM. P. WHARTON, 1923—Massachusetts  
Director, Massachusetts Forestry Association

## WHAT THE ASSOCIATION IS WORKING FOR

**A**DEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in co-operation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production; more extensive PLANTING OF TREES by individuals, companies, municipalities, states and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND, REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNAL FORESTS.

FOREST RECREATION as a growing need in the

social development of the nation and a God-given birthright of our children; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.







# AMERICAN FORESTRY

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION

WASHINGTON, D. C.

OIDVID M. BUTLER, Editor

L. M. CROMELIN, Assistant Editor

Vol. 29

JUNE, 1923

No. 354

## CONTENTS

THE "MOTHERS' TREE"—Frontispiece.....	322
THE BLAZED TRAIL OF FOREST DEPLETION—Gifford Pinchot.....	323
With nine illustrations	
PRESIDENT HARDING REASSURES FOREST COMMITTEE.....	329
With one illustration	
CATERPILLARS A LA PIUTE—I. F. Eldredge.....	330
With four illustrations	
THAT POP-EYED MOONSHINER—Poem by Charles V. Brereton.....	332
RUSHING SUPPLIES VIA THE "FOREST LIMITED"—Fred Morrell.....	333
With six illustrations	
SPARE THE CURRANT AND SPOIL THE PINE—Samuel B. Detwiler.....	337
With four illustrations	
VACATION TRIPS IN CENTRAL AND WESTERN NEW YORK.....	341
With six illustrations	
NATIONAL CONSERVATION AND AMERICAN FORESTRY ASSOCIATIONS MERGE.....	346
WHITE BIRCH CHOSEN TO HONOR MOTHERS.....	347
With two illustrations	
PLANTING EVERGREENS ON THE HOME GROUNDS—Winfield A. Kimball.....	348
With three illustrations	
SILVER ELMS MARK MASSACHUSETTS DEDICATION AT THE LINCOLN MEMORIAL.....	349
With one illustration	
DISABLED VETERANS PLANT MEMORIAL TREE AT ARLINGTON.....	350
COLONEL GREELEY RECEIVES DISTINGUISHED SERVICE MEDAL.....	350
FLOWERING TREES AND SHRUBS OF THE LOWER RIO GRANDE—Kate Peel Anderson.....	351
With twenty-eight illustrations	
CACIQUES AND OROPENDOLAS—R. N. Davis.....	359
With three illustrations	
PINES OF HEARTS CONTENT—L. L. Bishop.....	361
With six illustrations	
BLOSSOM OF THE TULIP TREE BECOMES HOOSIER FLOWER— Elizabeth Rainey.....	364
With one illustration	
OYSTERS GROWING ON TREES—S. J. Record.....	365
With one illustration	
EDITORIAL.....	366
LOBLOLLY PINE ON THE "EASTERN SHORE"—J. A. Cope.....	368
With ten illustrations	
WHY THE FLOWERS WEAR PETAL DRESSES—Dorothy Arno Baldwin.....	372
GENERAL C. C. ANDREWS.....	373
With one illustration	

*Published Monthly—40 cents a copy—\$4.00 a Year*

## CHANGE OF ADDRESS

A request for change of address must reach us at least thirty days before the date of the issue with which it is to take effect. Be sure to give your old address as well as the new one.

Publication and Business Office, 914 Fourteenth Street, Washington, D. C.

Entered as second-class mail matter at the Post-office at Washington, D. C., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 10, 1918.

Copyright, 1923, by The American Forestry Association.



### THE "MOTHERS' TREE"

THE WHITE BIRCH HAS BEEN CHOSEN TO HONOR MOTHERS THROUGHOUT THE LAND.

THE STORY OF THE PLANTING OF THE INITIAL TREE IS TOLD ON PAGE 347

# AMERICAN FORESTRY

VOL. 29

JUNE, 1923

No. 354

## The Blazed Trail of Forest Depletion

BY GIFFORD PINCHOT

*Governor of Pennsylvania*

THE people of the United States are the most wasteful in the world—wasteful in living, wasteful in manufacturing, and wasteful in handling their natural resources. The annual wastage in our homes, factories, fields, and forests is enormous.

In pioneer days the forests were an obstacle to development. They had to be removed to make way for agriculture, which was a more necessary and profitable use of the land. Among the early settlers, forest destruction by ax, saw, and fire was accepted as normal and necessary. It was good business and sound practice for them to destroy forests and open fields, but unfortunately the same clean-cutting methods as were used for the plowland in the valleys were also employed for the woodland

on the mountains. As a result, we have inherited almost endless stretches of barren mountain slopes which are producing nothing of any value. The only satisfactory crop these lands can produce is a tree crop, and it is our busi-

ness to see to it that this land is kept at work at the only job for which it is fitted.

Forest depletion has wrought havoc in all parts of the world. In this country the economic consequences of

forest destruction are felt chiefly in the older settled part—that is, in the regions where the forests have been cut over again and again and the population is relatively dense.

New England, which was at one time the center of the American lumber industry, now has left but 5 per cent of her original forests. After the best and more accessible forests of the Northeast were cut out, the lumber industry moved to Pennsylvania. Here it operated for many years, but in time lumber production began to wane in the only state

that embodies the word "forest" in her name. Then the Lake States became the center of lumber production. As soon as they passed the peak of production the lumber industry moved to the pine forests of the South, where



AT THE HEAD OF THE BLAZED TRAIL, WHERE IT IS CUTTING ITS WAY INTO THE HEAVY FORESTS OF THE PACIFIC COAST, OUR LAST STAND OF VIRGIN FORESTS. IN ITS WAKE IT HAS LEFT OVER 300 MILLION ACRES OF STUMPS, STRETCHING FROM THE ATLANTIC COAST TO THE ROCKY MOUNTAINS



LEETONIA WAS AT ITS BEST FROM 1913 TO 1917. THEN THE TOWN HAD A POPULATION OF 500 PEOPLE. DURING BUSY SEASONS 100 MEN WERE EMPLOYED AT THE SAWMILL AND TANNERY, 150 MEN PEELED BARK, AND SEVERAL HUNDRED WORKED ON THE LOGGING JOBS. THE SAWMILL (FOREGROUND) HAD A DAILY CAPACITY OF 100,000 BOARD FEET AND THE TANNERY (RIGHT BACKGROUND) HAD AN ANNUAL CAPACITY OF 3,000 CORDS OF HEMLOCK BARK

the pinnacle of production was reached about 1909. Since then there has been a wholesale shift of lumbering to the Pacific coast, where most of our remaining timber is now found. The three states of Washington, Oregon, and California contain about one-half of the timber still standing in the whole country, and fully 60 per cent of the timber supply of our country occurs west of the prairies.

#### TAKING THE SYLVAN OUT OF PENNSYLVANIA

The original forests of Pennsylvania covered 28,650,000 acres and contained over 500,000,000,000 board feet of lumber and 286,500,000 cords of wood. Now less than 25,000 acres of original forest remain and there is left only one-twenty-fifth of the lumber and one-sixth of the cordwood that we once had. The average acre of original forest contained about 20,000 board feet of fine lumber. The forest land that is now left in the state carries only about six cords of wood, most of which is small in size and inferior in quality.

Only a small portion will make lumber.

In 1860 Pennsylvania exceeded all other states in lumber production. Now she holds eighteenth place and produces less than 2 per cent of the total lumber production of the country. Until 1890 Pennsylvania was able to supply her own timber needs and had a large balance to export. Now more than 80 per cent of the lumber she uses, 74 per cent of the pulp wood needed by the pulp mills, and 75 per cent of the timber required by the anthracite mines is imported from beyond her borders.

Pennsylvania's dependence upon outside sources for wood costs her people at least \$100,000,000 a year, of which \$25,000,000 is paid out for freight. The average person in the state consumes annually over 300 board feet of lumber, of which our forests are supplying only 58 board feet. In other words,

the people of Pennsylvania are consuming six times as much lumber as their forests are now supplying.

During the last thirty years Pennsylvania has been depending upon other states to make up her wood deficit. It is evident now that these states cannot continue their wood-relief work much longer. Their supply is also giv-



ALL THAT IS LEFT OF LEETONIA. WHEN THE WOOD-WORKING PLANTS CLOSED DOWN FOR WANT OF FORESTS, THE ENTIRE TOWN, WITH 400 ACRES OF LAND, WAS SOLD FOR \$6,500, THE PRICE OF ONE MODEST CITY HOME



ing out. It is clear that if the people of Pennsylvania want sufficient wood to meet their needs Pennsylvania must produce it. There is plenty of forest land in Pennsylvania—more than 13,000,000 acres—which, if handled properly, will satisfy all the wood needs of the people of the state. It is capable of producing annually at least 2,400,000,000 board feet of lumber and 4,500,000 cords of wood. This possible yield is greater than the largest annual output of the state in the banner year (1900) of lumbering in Pennsylvania.

For three centuries the American lumberman has been roving over the country. He is now approaching his end, for most of the timber has been cut. The lumberman did not consider the land. All he wanted was the wood. His business was making the wilderness yield a commodity of civilization, regardless of how it was produced or whether it could be renewed. If he could not get it at one place, he moved to another. The time is now come when he cannot move again, for he has no place to go. Where forests of great and glorious trees once stood, devastated hillsides now remain, and famished forest communities are struggling for an existence amidst the bleak stretches of unproductive stump land.

Let us not blunder along blindly with the false notion

that we have no forest problem in urgent need of solution. The forest problem is at the very foundation of our national existence. The prosperity of our states, the welfare of our communities, and the lives of our citizens depend upon the products of the forest.



OUT OF THIS STAND OF GIANT HEMLOCKS ROSE THE TOWN OF NORWICH, WITH THE GREATEST SAWMILL THAT EVER OPERATED IN PENNSYLVANIA. THE STORY OF NORWICH IS A FOREST TRAGEDY; READ IT

#### THE STORY OF LEETONIA

Let me tell you the story of a few typical lumber towns of Pennsylvania and you will see clearly the blazed trail of forest depletion.

Fifty years ago a vast and unbroken forest covered the extreme southwestern part of Tioga County, Pennsylvania. As late as 1870 only two families lived on the site that later became the busy lumbering town of Leetonia. Then lumbering was just beginning in the region and only white pine was cut. Other trees, such as hemlock, birch, beech, and maple, had no market value. As many as 10,000,000 board feet of white pine were taken out of the region about Leetonia

in a single season and floated down Cedar Run. In those days the choicest white pine brought from \$3.00 to \$3.50 per thousand board feet.

After most of the white pine about Leetonia had been cut out, a market developed for hemlock bark. The bark supply was so great that in 1879 a tannery, with an annual capacity of 3,000 cords, was established. Almost over

night the settlement of two families grew to a town of two hundred people. In 1882 a railroad came to town, and in 1897 a sawmill with a 6-foot band saw was added to the town's business equipment. This mill was operated continuously until 1913, when it was replaced by a larger and a better mill, with a daily capacity of 100,000 board feet.

Leetonia was at its best from 1913 to 1917. Then the town had a population of 500 people. Many men were at work in the woods preparing logs for the sawmill and peeling bark for the tannery. More men were employed at the sawmill and in the tannery.

In 1917 it became evident that the town was doomed, for the supply of wood and bark was beginning to give out. Each succeeding year the reserve supply became lower and lower. In the early winter of 1920 the bark supply was completely exhausted, and the tannery, which had been in operation continuously for more than 40 years—to be exact, since 1879—was closed down, and in 1921 the last log was cut at the sawmill.

#### A TOWN THAT SOLD FOR LESS THAN A HOME

The closing down of the only two industries of the town was the next to the last chapter in its existence. The last chapter was the sale of the whole town of seventy houses, including the tannery, the sawmill building, and 400 acres of land, for \$6,500, the price of one modest city

home. There was nothing left for the people to do but pack up and get out. This they did in a hurry, for in the fall of 1922—one year after the sawmill shut down—only four families remained in the town.

Three of the four families moved out in the spring of 1923. This left only one family—that of the Forest Ranger. Within a circle of six-mile radius only one other family resides. These two families are the only human inhabitants and the sole guardians of 200,000 acres of unbroken forest land that completely surrounds their modest mountain homes.

I know of no more necessary and honorable work for the citizens of any state than that of forest restoration. A bare beginning has been made at Leetonia. Just one Forest Ranger is now on the job. He has willingly separated himself from the rest of the world to assist in building up new and better forests. But he cannot handle the situation alone. More helpers will be needed as the work progresses, for vast areas of forest land are in urgent need of protection from forest fires, and a valuable forest growth must replace the scanty scrub on the hills that were formerly covered with dense stands of big trees.

#### GARDEAU, REARED BY GIANT HEMLOCKS

Forty years ago Gardeau was a young and promising lumber town in northern Pennsylvania. The only industry the town ever had was a sawmill, which made and



THE BIG AND BUSY SAWMILL AT NORWICH. IT HAD A DAILY CAPACITY OF 300,000 BOARD FEET AND WORKED UP SOME OF THE FINEST HEMLOCK LOGS THAT PENNSYLVANIA EVER PRODUCED, BUT ITS ACTIVE LIFE WAS LESS THAN TEN YEARS



THIS IS ALL THAT WAS LEFT OF NORWICH IN THE WINTER OF 1922-1923. WHEN THE FORESTS AT NORWICH GAVE OUT, IN 1921, NOT A SINGLE PLACE WAS LEFT IN PENNSYLVANIA WHERE THE MILL COULD BE RE-ESTABLISHED, AND THE PEOPLE OF THE TOWN WERE LEFT HIGH AND DRY

kept the town. It had a daily capacity of 200,000 board feet and remained in operation until 1899, when all the lumber was cut out and there was no more work for it to do. For twenty years the town was busy and prosperous. At its height 1,000 people lived there and in nearby camps.

In 1899, when all the forests around Gardeau were cut out completely, the sawmill had to close down. There was nothing left for the people to do but move. Most of them went about thirty miles northwest to Granere, where they started up another lumber town in the midst of equally fine forests. Today nothing is left of Granere and only five people live at Gardeau.

#### THE WRECK AT CROSS FORK

In 1893 virgin forests practically covered the hillsides overlooking the site that in a few years became the biggest and busiest lumber town that Pennsylvania ever had. It was just thirty years ago that the Lackawanna Lumber Company broke ground for the town of Cross Fork. Then there were only five or six families in the entire valley. In 1895 a sawmill was erected. It burned down in 1897. Another one was built, which burned down in 1903. In the autumn of the same year a bigger and better mill was in full swing. Two years of lumber output of this big mill would more than encircle the globe with boards an inch thick and a foot wide.

The sawmill was the heart of the town. The annual output of rough lumber was valued in the neighborhood of \$1,000,000. In addition to the sawmill, a stave mill, a kindling mill, a shingle mill, and a hub factory helped to bring business to the town. Every part of the town was busy, but back beyond the town the forest was filled with men at work cutting logs and bringing them to the

mills. Not less than 5,000 lumberjacks were engaged in the woods. The town itself had no less than seven hotels and its post-office was one of the few in Potter County that issued international money orders.

In the early days few people thought that the forests about Cross Fork would ever be cut out, but in April, 1909, the big sawmill was closed down, and by autumn of the same year the people were leaving the town in large groups. In the winter of 1912-13 the stave mill was closed and in the fall of 1913 the railroad discontinued service.

#### NEW FORESTS ARE RESTORING THE TOWN

Almost over night Cross Fork became a deserted village. Its decline was even more rapid than its rise. For a number of years the town was dead, but it is being resurrected again. Much of the land about the town has been purchased by the state, and forest restoration is now moving ahead. Where the lumber company left almost endless stretches of desolation, the Department of Forestry has developed valuable young forests.

For a short time the town of Norwich held a commanding place in the lumber industry of Pennsylvania. As late as 1909 the entire town site was covered with a dense stand of big hemlock trees. Individual acres were stocked with 50,000 board feet of lumber, and in addition yielded 25 cords of bark. Nowhere in the state were better stands of hemlock found. My friend and co-worker, Colonel Henry W. Shoemaker, who since his boyhood days has been studying the people and the forests of northern Pennsylvania, informs me that he saw the site of Norwich before the town was born, at its height, and after its death. He relates that the first chapter of the rise of this unique lumbering town was the erection of a few shacks





THIS IS THE KIND OF HARDWOOD STAND THAT WILL DEVELOP IN PENNSYLVANIA IF FOREST FIRES ARE KEPT OUT OF THE WOODS

and shanties and the building of a general store in a small opening cut out of the dense forest of big hemlocks. Late in the spring of 1910 tree-felling and bark-peeling began. Then followed the lumbering operations, the erection of the sawmill, and the building of houses. By 1912 a busy lumbering town was hard at work.

At its height the town had a population of 2,000 people. Many more men worked in the woods. They lived in shanties, shacks, and camps scattered throughout the Goodyear Lumber Company's holdings of 30,000 acres. The mainstay of the town was the sawmill, with a daily capacity of 300,000 board feet. It was regarded as the most modern and best-equipped mill that ever operated in the State of Pennsylvania.

Near the sawmill was a kindling-wood plant, and beyond it was a stave mill and a hardwood distillation plant. To

supply all these industries with raw material was a big job and required an enormous amount of equipment and an efficient organization. Over one hundred miles of logging railroads were maintained to bring the wood into the plants. In those days Norwich was a busy place. It turned out 90,000,000 board feet of lumber in a single year.

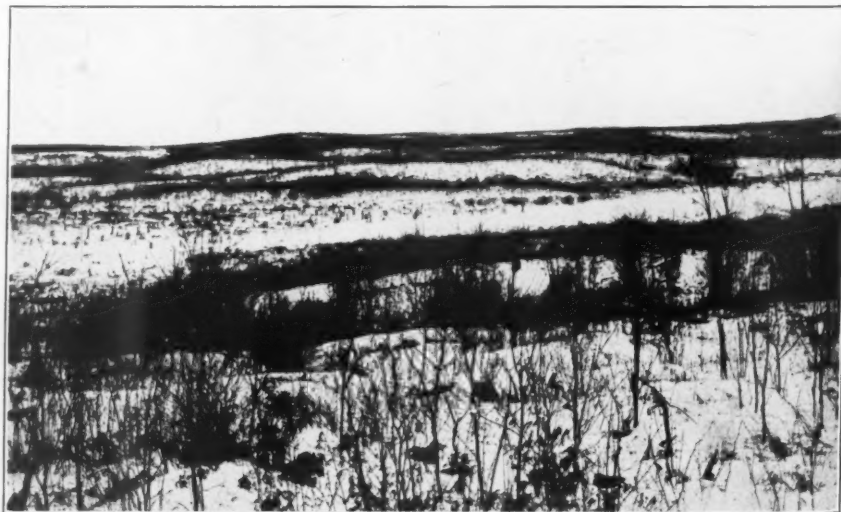
#### THE FOREST TRAGEDY AT NORWICH

When lumbering operations started almost everybody believed that the timber supply was inexhaustible. The most conservative estimates made the timber supply sufficient for not less than 25 years. But that all predictions were incorrect became evident as early as 1917. Then it was seen that the town was doomed. Its active life was less than ten years, for the mill that started in the fall of 1912 closed down forever on August 20, 1921.

The story of Norwich is a forest tragedy. When the timber at Cross Fork was cut out the people went to Betula, and when no forests were left about Gardeau the people went to Granere. When the sawmill equipment was no longer needed at Leetonia, it was shipped to Kinzua; but when the supply of timber at Norwich gave out, in 1921, not a single place was left in Pennsylvania where the mill could be re-established, and the people of the town were left high and dry.

In the fall of 1922 less than twenty families remained in Norwich. All of the remaining workmen were employed in dismantling the mill, tearing down houses, and lifting railroad tracks. According to present plans, not a single human being will be left in the town after July, 1923. Discouragement and despair are written everywhere in the village—in the faces of the people as well as in the condition of tumble-down houses and grass-covered streets. The story of Norwich is the saddest chapter in the whole history of Pennsylvania lumbering.

[Continued on page 374]



ALMOST ENDLESS STRETCHES OF DEVASTATED FOREST LAND OCCUR ON THE PLATEAUS AND MOUNTAIN SIDES OF PENNSYLVANIA



# President Harding Reassures Forest Committee

*Representatives of more than thirty organizations, who call upon the President, are told that reduced appropriation for Eastern Forests is of temporary character*

THERE has been no change in the Federal policy with respect to acquiring forest land under the Weeks law, President Warren G. Harding told a committee of representatives from more than thirty different organizations which called on him at the White House on May 2, urging a restoration of the sum formerly appropriated for this work. President Harding expressed himself as in hearty sympathy with the Weeks law program and declared that the reduced appropriations for the work during the last two years are of a temporary character, made necessary by the urgency of governmental economy along all Federal lines.

The President said that the Administration thoroughly appreciates the forest situation and the urgency of going forward with remedial measures, and he expressed the hope that the country will be sufficiently restored to normalcy by next year to permit continuing the work contemplated by the Weeks law on an enlarged scale. He stressed very clearly, however, his feeling that the individual states should enter into active co-operation with the Federal Government in the work of forest protection and forest restoration.

The committee which called on the President represented organizations whose membership numbers many thousands of citizens who are urging that the acquisition of forest land under the Weeks law be resumed to its former scale. The spokesman for the committee was Elbert H. Baker, a vice-president of the American Forestry Association, of Cleveland, Ohio, representing The American Newspaper Association. Mr. Baker's statement to the President is quoted in part below:

"The act to acquire forest lands by purchase at the headwaters of navigable streams, known as the Weeks law, was signed by President Taft on March 1, 1911. It appropriated \$11,000,000 to be expended, at the rate of \$2,000,000 annually, by the National Forest Reservation Commission, after preliminary investigations by the Geological Survey, the Forest Service, and the Department of Justice.

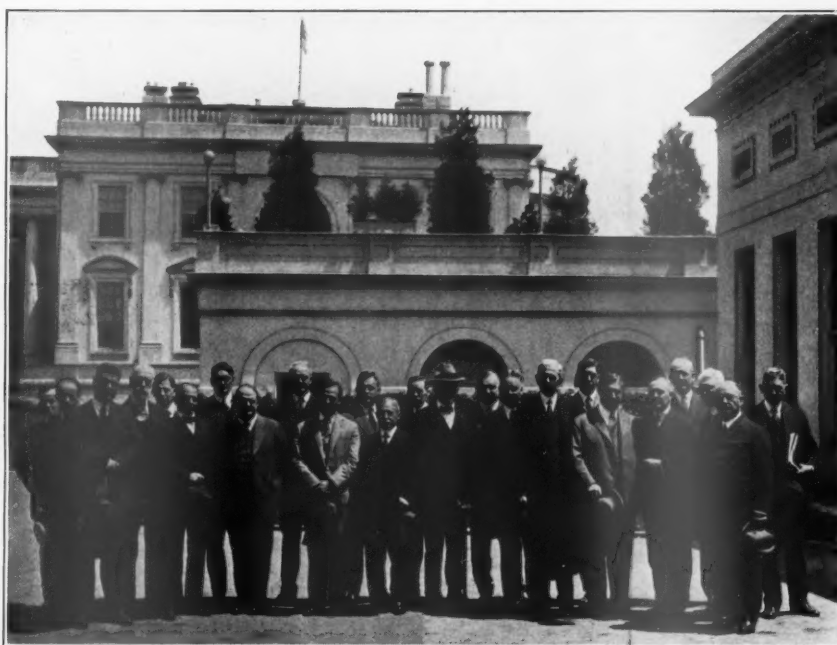
"More than two million acres (2,142,476) have been acquired under this law in eleven states, at an average price of \$5.06 per acre. The commission has limited its purchases to certain restricted areas in the White Mountains and Southern Appalachians, with the single exception of one small purchase in Arkansas to connect two pieces of forest land already owned by the government. Of the purchases to date, 440,000 acres are in the White Mountains of New Hampshire and

Maine; 74,000 acres are at the headwaters of the Ohio River in Pennsylvania, and 207,000 acres at the headwaters of the same river in West Virginia; the remainder, or one and one-half million acres, in the southern states from Virginia to Georgia.

"Already a number of these tracts are self-supporting and collectively yield an average of \$100,000 annually from timber sales. These lands have greatly increased in value and are estimated to be worth from 50 to 100 per cent more than the total government expenditure. They are therefore an excellent investment. In the White Mountain region 46 per cent of the original plan has been carried out; in the South something more than 25 per cent.

"During and since the war, the appropriations have

[Continued on page 375]



DELEGATION WHICH CALLED UPON PRESIDENT HARDING ON MAY 2 IN BEHALF OF MORE RAPID EXTENSION OF FEDERAL FORESTS IN THE EAST

# Caterpillars à la Piute

*An Uncommon Moth Which Defoliates the Jeffrey Pine and in Turn Is Eagerly Devoured by the Indians*

BY I. F. ELDRIDGE

**C**OLORADIA PANDORA! A pretty name for most anything from a tooth paste to a movie actress! This dainty name, however, has already been given by entomologists to a moth commonly known as the Pandora moth. This creature may be a thing of beauty in the moth form—I don't know; I never saw one—but in the caterpillar stage it is nothing to brag about. Besides being homely, the caterpillar is in rather poor repute with foresters, having been accused of defoliating trees. But even so, without beauty or principle, the *Coloradia Pandora* caterpillar is held in high esteem in some circles. As some people take to the mountains in the summer to pick huckleberries and others go to Havana to enjoy the relative humidity, so do the Piute Indians in the Mono Lake country of California periodically visit the Jeffrey pine forests on the eastern slopes of the Sierras to enjoy the succulent caterpillar of the Pandora moth.

This moth lays its eggs in the bark of the Jeffrey pine. After hatching, the larvæ ascend the tree and feed on the needles of the pine. They hibernate during the winter

in the tops of the trees, and in the second summer commence to descend the tree trunks. By this time they are fat and ready for a harvest.

When the nomadic Indian bands in the Mono Lake country get word from their trusty scouts that the Pandora is out in full force and about to ripen, they drop everything, load up their ponies and squaws, whistle up the dogs and the children, dump the coffee grounds on the fire, and pull out for the worming grounds, where all hands get to work on the joyous harvest of the heaven-sent manna. Shallow trenches with perpendicular sides are scooped around the bases of the trees. The caterpillars descending are trapped here and are gathered by the Indians, who dry them and put them away for future use.

## THE PIUTE'S PANDORA PATTIE

Now the Piute doesn't go to all this trouble to gather worms just for the pleasure of collecting, exquisite though that might be; but, believe it or not, he gets them to eat.

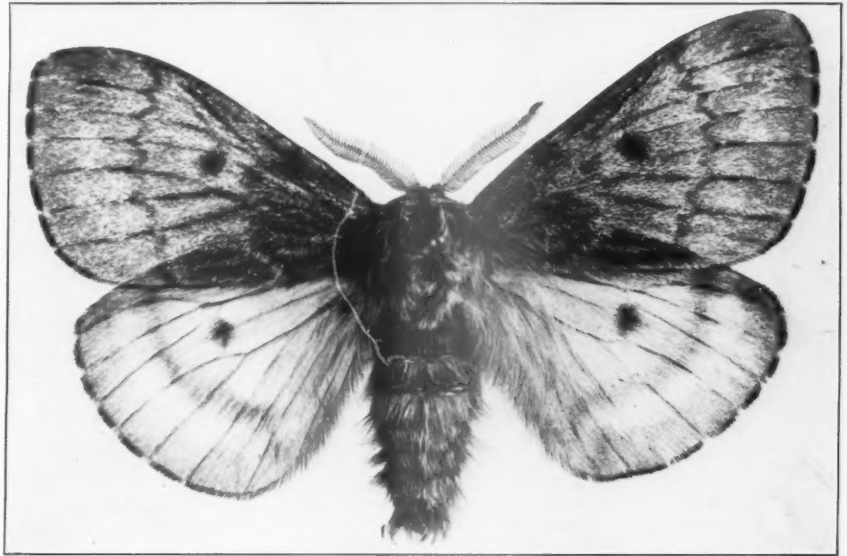


*Photograph by J. E. Patterson, Bureau of Entomology*

A VIRGIN STAND OF YELLOW-PINE TIMBER NEAR WOCUS BAY, UPPER KLAMATH MARSH, WHICH HAS BEEN SEVERELY DEFOLIATED BY THE PANDORA MOTH. THE SEVERITY OF THE DAMAGE TO THE TREES IS CLEARLY MARKED BY THE WAY IN WHICH THE LIMBS HAVE BEEN STRIPPED OF THEIR NEEDLES. THIS OUTBREAK OF THE MOTH WAS INVESTIGATED IN AUGUST, 1921, BY J. R. PATTERSON, OF THE BUREAU OF ENTOMOLOGY

Nice, fat, hairy caterpillars may not appeal to you and me, even if we can eat raw oysters without a qualm, but to the tired Piute business man a Pandora pattie or a cream of caterpillar soup supplies just the fillip a jackrabbit-jaded appetite needs. I do not know in what different ways the caterpillar is prepared for eating, but I gained the impression from one Piute epicure that a common dish was a kind of thick stew.

According to Dr. J. M. Aldrich, of the United States National Museum, this food is called pe-aggie. "This is an important food of the Indians about Mono Lake," says Dr. Aldrich, "in spite of the fact that it only lately came to the notice of the whites outside the immediate region. Mr. Way



Photograph by Dr. R. W. Shufeldt

THE PANDORA MOTH, WHOSE FLIGHT AWAKENS THE NOMADIC INDIANS OF THE MONO LAKE COUNTRY IN ANTICIPATION OF A JOYOUS FEAST. THE ACTUAL SIZE OF THE MOTH IS ABOUT TWO THIRDS THAT SHOWN IN THE PHOTOGRAPH. ITS BODY IS A DARK EARTH-BROWN AND ITS SUPERIOR WINGS ARE ONLY A TRIFLE LIGHTER. THE INFERIOR WINGS ARE A PALE TAN



Photograph by courtesy of Dr. Aldrich, U. S. National Museum

THESE ARE NEITHER RAISINS NOR PRUNES, BUT DRIED LARVÆ OF THE PANDORA MOTH, WHICH THE INDIANS HIGHLY PRIZE AS AN ARTICLE OF FOOD. THESE SPECIMENS WERE BOUGHT FROM AN INDIAN WOMAN AT MONO LAKE, COLORADO, BY J. M. ALDRICH

reports that Chief Jake Garrison put up a ton and a half this past summer (1920) in the woods just south of Mono Lake. He says the caterpillars are regarded as a great delicacy, and only a few at a time are used to flavor a stew. In the case already reported by me, however, it appeared that the stew was made entirely of caterpillars. I found the larvæ tough and the stew insipid from lack of salt, the flavor resembling to my palate the taste of linseed oil. I could not from my own experience pronounce it a delicacy. However, *de gustibus non disputandum.*"

I have never indulged, myself, in any of the Piutian table delicacies and hope that I never shall, but once I came very near it—all on account of *Coloradia Pandora*, too. In the summer of 1907 I was chief of party of a hardy crew of timber cruisers surveying and estimating timber in the Inyo National Forest in California, just south of Mono Lake. We were working in a large body of Jeffrey pine on a plateau hanging 8,000 feet up on the steep east slopes of the high Sierras, at the head of the Owens River Valley. Early in the game I had contracted with an aged Piute Indian and his son the job of packing grub and other camp supplies into our camp from the base at Mono Mills. The old Indian used his scrawny ewe-necked pintos and his intimate knowledge of the 45,000-acre tract of timber to good advantage and soon established a reputation for turning up at the appointed time, usually once a week, at our cook tent with a fresh supply of bacon, beans, flour, Tea Garden drips, and smoking tobacco.

#### THE FLIGHT OF JIM CROSS HIS MARK

All went well for a couple of months, and we had gradually worked out to the far edge of our timber, about 18

miles from our base, and were camped on Dead Man's Creek, when old Jim Cross His Mark, as our Indian hero was carried on the expense vouchers, failed to show up at the appointed time. Nor did he appear the next day or the day after that. Geechi, the Jap cook, who used to be a sea captain before he took up cooking, and I took stock and decided that by adding a little diplomacy to what grub we had we might be able to hold our bunch of



Photograph by J. E. Patterson, Bureau of Entomology

SHOWING PUPÆ OF *COLORADIA PANDORA* IN LOOSE PUMICE SOIL, WHICH HAVE BEEN EXPOSED BY REMOVING THE GROUND COVER AND SURFACE SOIL. THE PUPÆ ARE DARK BROWN IN COLOR AND ARE 25 MILLIMETERS LONG AND 12 MILLIMETERS WIDE. THEY ARE GATHERED BY THE INDIANS FROM THE BASE OF THE TREE, DRIED, AND ARE THEN READY FOR A PANDORA STEW—A DISH OF GREAT DELICACY AMONG THE PIUTES

plain but hearty eaters from stampeding for four or five days longer, by which time the pack-train would surely arrive.

But it didn't, and we waited another day amid nasty looks from the bean-eaters and pointed remarks to the general effect that grown white men couldn't be expected to do four miles of line a day on a breakfast of oatmeal without salt, sugar, or milk, and a lunch of the same, only cold and jellified, unless they could return to camp at night to a supper more sustaining than Worcestershire sauce soup and oatmeal, again without salt, sugar, or milk. Still the noble red men did not turn up; so on the sixth day I footed it in across two mighty mean looking mountain ridges coated with volcanic cinders, that kept me in second all the time, 18 miles, to Mono Mills, where I arrived badly blown, but still able and more than anxious to kill out at least one Piute family.

#### THE CALL TO GO AWORMING

The place near the store where old Jim's band had camped was as empty as a dog-house. Fido's dead—no brush wickiups; no 90-year-old squaws; no flea-be-deviled dogs or fat-faced children; nothing left but tufts of rabbit fur and a few well-polished horse bones. At the store the commissary man told me that word had come two weeks back of an outbreak of caterpillars in the locality off to the north, and that over night old Jim

and his band had struck their tents and had gone aworming.

Well, to finish my story, I arranged to have supplies sent in the next day, and, taking on a ham and a half sack of flour, I started out afoot to lift the siege of Geechi, the cook, on Dead Man's Creek. I made it all right about 11 o'clock that night, but that ham grew to a quarter of beef and the half sack of flour took on the shape and weight of a grain elevator long before I picked up the soul-warming light of our camp fire under the pines. Can you blame me if I shy a bit even yet when *Coloradia Pandora* is mentioned? A pretty name, yes, but in stews I confess that my taste runs more to the Hibernian than to the Piutian school of dietetics.

#### THAT POP-EYED MOONSHINER

A pop-eyed moonshiner, with whiskers like a cat,  
Wuz settin' on a stone fence a swingin' of his hat,  
When along come a Ranger, ridin' mighty bold.  
"Howdy," says th' Ranger, speakin' short an' cold.  
"Fire on th' mountain. Git a fork an' trot along."  
Then he rid down th' road a singin' of a song.

With a jump and a snort an' a feline squall,  
Thet Tom-whiskered 'shiner fell off thet wall.  
"Gittin' so a man kain't do a durned thing;  
Kain't even make likker 'longside a mountain spring.  
Thet fire's been burnin' fer fourteen year,  
An' nobuddy ain't seen it but th' gol-durned deer."

"Now a Ranger comes a snoopin' an' a causin' talk.  
Guess I'll git me a gun an' go make him walk."  
Thet fuzzy-faced 'shiner with th' protuberant eye,  
Sneaked up to th' fire to play "I spy,"  
But th' Ranger wuz quicker an' bumped his head;  
Took away his gun an' his powder an' lead.

Now th' moonshiner's workin' on th' railroad gang,  
'Cause if he'd tried to fight back, he knew he'd hang.  
Th' Ranger's got a still fer cookin' dog-feed,  
An' th' pots an' th' kiddles is a holdin' pine seed.  
Th' "cats"\* ain't a yowlin' in th' hills no more,  
An' th' doggoned fires ain't a makin' folks sore.

—Charles V. Brereton.

\* Stills.

#### Again the Old Order Changeth

BY C. F. KORSTIAN

For many years hemlock bark, so far as the writer is informed, was the only coniferous material used in the tanning industry in this country. It is, therefore, of interest to find an extract plant which has been using red spruce bark for the production of tannic acid. This plant, which is located in West Virginia, has been obtaining yields of 9 to 11 per cent of tannic acid, and occasionally as high as 12 per cent, from the spruce. Because of peculiar conditions connected with the administration of this operation, the spruce bark is commanding \$14 per ton, \$2 more than hemlock bark—a differential occasioned in part by the greater cost of exploitation of the spruce bark. Although the extracts from both species are made to 25 per cent tannin, that from the spruce is lighter in color than the hemlock.



# Rushing Supplies via the "Forest Limited"

BY FRED MORRELL

**J**UST what the term "forest fire" means to us depends on where we live and what has been our experience.

To the citizen of Denver, or other towns in the great plains to the east of the big forest areas of the Northwest, it may bring only a picture of a beautiful "fire sun," hanging like a blood-red ball out from the horizon in the late afternoon or the early morning. To the resident in the forest region it may bring up a picture of heavy smoke pall, blackened ruins of forest and homestead, or a terrible, vivid memory of loved one, or life's hard-earned savings lost. To the experienced Forest Service men of the Northwest it brings memories of weeks of anxiety; of days and nights on the fire line or the trail, with a pall of never-lifting smoke that obscures from sight even the nearest mountain or hides the danger of a fast-approaching fire; recollections of the hardest work and the most nerve-telling strain; of loss of sleep; of air filled with ashes and the smell of burning forests; of danger and excitement and responsibility for lives of men and public and private property of untold values. And through it all, the success of battle depends more often than not on the pack-train in supporting the front lines, far back in the mountains, with food and equipment.

The task of moving two hundred tons of food and equipment a distance of thirty miles does not mean much to a railroad. It is not a big task for a fleet of modern trucks over hard-surfaced roads. But when it has to be done on pack animals through some of the roughest mountain country in the world, where the only development consists

of poorly constructed trails, and where swift mountain streams must be forded or rafted and forage for pack stock is hardly to be found at all, it assumes, like the proverbial inch on the end of a man's nose, much more serious proportions.

This, in brief, was the task in transportation which confronted the Supervisor of the Clearwater Forest of Idaho during a recent "fire season." Let us take a fairly close-up look at it, because it is typical of the problem which confronts many forest men throughout the west summer after summer.

An average load for a pack animal through such country as has been described is two hundred pounds, and the average distance he can make with such a load is about twelve miles per day. In other words, it will take him five days to take this load of two hundred pounds thirty miles and get back to his starting point for another load. Not very fast traveling, you say. Remember that he is making this distance up and down mountains, fording dangerous streams, jumping over logs, and threading his way as best he can between trees, and scrambling over underbrush. And recollect, too, that there will be many a night when the grain that he carries plus the small amount of forage he will find will leave him hungry. If he "stands up" to a season's work with an average of twelve miles a day behind him, he will be an animal worthy to take his place among the "physically fit" and the "mentally capable."

Now, to measure the job with this yardstick, if our



THE "FOREST LIMITED" ON THE TRAIL

A pack-train taking in supplies to fire-fighters on the Flathead National Forest in Montana. The average load for a pack animal is 200 pounds and he usually makes twelve miles a day through very rough country.



A BIT OF DEEP WATER

Ranger crossing a flooded section of the South Fork of the Boise River, in the Sawtooth National Forest, Idaho.

good horse, Jack, moves two hundred pounds—one-tenth of a ton—six miles in a day (and returns for another load, making twelve miles traveled), he accomplishes six-tenths of a ton-mile of work. Moving two hundred tons thirty miles, which is the average distance that the material had to be moved from the end of the truck road to its first place of use within the forest, represents 6,000 ton-miles, or 10,000 days' work. In addition to moving the amount of material, consisting of food supplies, tentage, bedding, tools, food, powder, and other equipment, much of it had to be moved from camp to camp as it was needed in successive fires; and when the season was ended, the equipment had to be assembled for repair and storage. Since there were small facilities for this within the forest, much of it had to be taken back to the point of starting. This work added an estimated 25 per cent to that of transportation in to the forest, or an additional job of 1,500 ton-miles, or, roughly, 2,500 days' work, making a total of some 12,500 unit days.

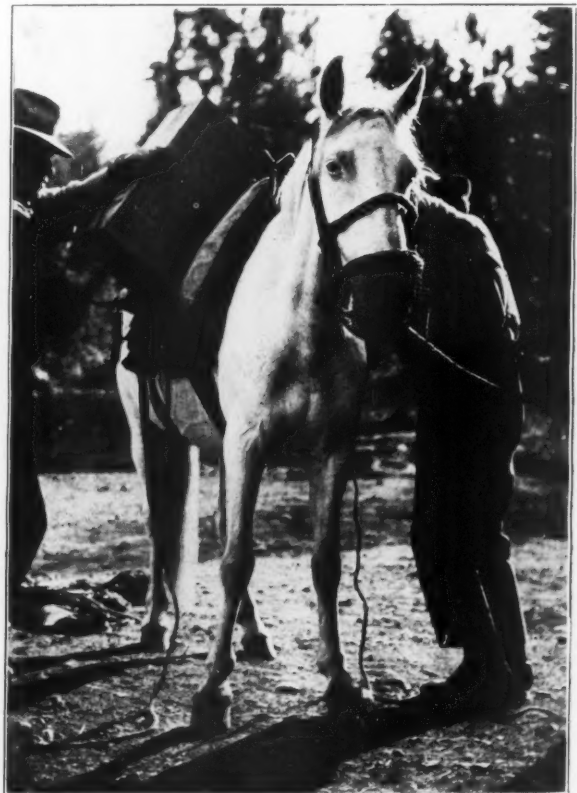
Because snow and severe weather come early and stay late, all this work had to be done in the months of June, July, August, and September. It is at once apparent that our faithful friend, Jack, had to have help. Time waits for no man, and a forest fire only for something to burn. If you are skilled in short division you can readily ascertain that if the job were distributed evenly over the whole 120-day period and each horse worked every day, Jack would need some one hundred assistants to do the job. But the "breaks" that come in a bad fire season don't leave the problem as simple as that. The supervisor could not look ahead at the beginning of the season and know how many men and how much equipment he would need and when they would be needed. There were a million acres of timber land on which were millions and millions of trees. In any one of these lightning might start a fire which would spread to the surrounding forest before a

crew could reach it and put it out. The record shows that one hundred and eleven such fires were set during the season. So the work bunched up. Fires being set by lightning obviously start suddenly and come in bunches immediately after dry lightning storms. Between July 21st and 31st, sixty-eight of the total of one hundred and eleven fires were started. The supervisor was provided with a train of fifty pack animals, which was sufficient to

### O Wonderful Horse

"O horse, you are a wonderful thing; no buttons to push, no horns to honk; you start yourself, no clutch to slip; no spark to miss, no gears to strip; no license-buying every year, with plates to screw on front and rear; no gas bills climbing up each day, stealing the joy of life away; no speed cops chugging in your rear, yelling summons in your ear. Your inner tubes are all O. K. and, thank the Lord, they stay that way; your spark plugs never miss and fuss; your motor never makes us cuss. Your frame is good for many a mile; your body never changes style. Your wants are few and easy met; you've something on the auto yet."—Ranger H. R. Elliott, of the Malheur.

supply the regularly employed lookouts and patrolmen and a reasonable number of fire-fighters. When the number of men was increased, as it was up to a maximum of six hundred at one time, additional stock had to be found on short notice. The supervisor had prepared, so far as possible, for this emergency by learning the whereabouts and availability of privately owned pack-trains, and the



AN OLD FAVORITE

This is pack-horse "Whitey" getting loaded up for the day's trip.



#### ADJUSTING A PACK EN ROUTE

It is often necessary to rearrange the packs when on a long "trek" with a pack-train, and a part of the ranger's duty is to see that such adjustments are properly made.

excess had to be taken care of by mobilization of this stock. The largest number of stock in use at any one time, including the fifty owned by the government, was three hundred and sixty-six.

While this is a story of transportation only, you will want to know the need for so many tons of food and equipment. I have said that at one time there were approximately six hundred fire-fighters in the forest. During the eighty-day period that the season lasted, there was an average of approximately three hundred and seventy-

five fire-fighters employed, and for a period of one hundred days an average of about fifty rangers, lookouts, patrolmen, trail-builders, cooks, packers, etc., were employed for the regular protection force. About ten pounds of food supplies, feed, and equipment are required per day for each man. This quantity plus the extra moving between camps mentioned above gives approximately the two hundred tons estimated.

Neither would the reader get a correct idea of the problem without a word regarding the force which had to



#### TRAIL BRIDGE OVER DEADWOOD RIVER, IDAHO

The difficult problem of transportation has been manfully met and progress steadily made toward the construction of an adequate trail system. Its accomplishment will mean much to the men of the Service in the elimination of many hardships.



handle the job of transportation as one part of their task during the fire season. The supervisor was provided with two fire aids—experienced men who helped to organize and oversee the work—six rangers, and two experienced clerks. All the rest of the force was a temporary summer

State of Connecticut and considerably larger than the combined area of Rhode Island and Delaware. Within these three forests there are at the present time a total of fifty-six miles of roads and 1,450 miles of trails. The country is of the typical western rough mountain type and travel



READY TO LEAVE THE RANGER STATION

The pack-train loaded with "cats" for the boys on the front of the fire-line, who must look to the ranger station for support and what comfort they can get during their hazardous duty.

organization. A small percentage of them had been on the work before and knew their jobs at the opening of the season. Of course, men had to be hired, supplies received, crews organized, bills paid, etc. For a force of eleven trained employees to secure and organize a force with a maximum of six hundred, provision them, and get them out into an undeveloped mountain region to points at an average distance of thirty miles from the nearest supply base—a force averaging about four hundred men—in a season of four months, is quite some task. It is not claimed, and you will hardly expect, that the highest efficiency was obtained from all these men.

Many other interesting phases of the job of discovering and fighting forest fires might be discussed, but this is a story of a transportation problem. So far, it has dealt with the Clearwater Forest alone. Perhaps a better idea of the inaccessibility of this territory might be given by considering available routes of travel on the Clearwater, Selway, and St. Joe Forests, which lie just west of the Montana-Idaho divide and from the city of Wallace on the north to the divide between the Selway and South Fork of the Clearwater River on the south, embracing a tract of nearly three million six hundred thousand acres of land. A comparison will serve better to give an idea of the size of the area. It is somewhat larger than the

across it by horse is impossible except on road or trail. Although severely burned in the past, the three forests still contain a stand of over twelve billion feet of merchantable timber—enough to build one million two hundred thousand substantial bungalows. The value of this timber to the nation, if converted into lumber at \$25.00 per thousand, would be three hundred million dollars.

Progress is being made slowly toward the construction of an adequate trail system. Appropriations for the coming year will allow for much more rapid progress than in the past. But if the reader will draw a diagram of a section of his own state containing five thousand square miles, stand this country "on end," cover it with almost impenetrable forests and brush, put in fifty-six miles of roads and 1,442 miles of trails, and then consider means of transportation over these routes, he will get some idea of what the difficulties are in the transportation of materials necessary for the protection of many of our western National Forests.

"LIGHTNING LINE" sayings: There would be a terrible shortage of lumber if splints were placed on broken promises.



# Spare the Currant and Spoil the Pine

*How the little currant bush, one-time neighborly neighbor of the white pine, is harboring a traitor of the forests*

BY SAMUEL B. DETWILER

FOR countless years the stately pine and the little currant bush lived and thrived as friends and neighbors on the North American continent. The winds that blew over the currant bushes and gently combed the needles of the pine bore messages of good will and clean comradeship between the two. And then, scarcely two decades ago, something happened to embitter the little currant bush against its big, kindly neighbor, the pine, and enlisting the help of its cousin, the gooseberry, it forthwith allied itself against the pine, not openly and with a defiant flourish of its tiny branches, but silently, secretly, and insidiously, bent upon furthering a war of extermination.

From that day to this it has aggressively helped to extend its battle lines with such threatening and alarming effect that men have had to rush to the aid of the proud pine to save it from the little currant bush's guerrilla warfare. What happened was that some time during the nineties the American currant contracted a disease—a strange malady—which transformed it into one of the

bitterest enemies of our most worthy forest tree, the white pine. The disease was brought to it from a foreign source, probably Germany. An undesirable immigrant, secreted in nursery stock, was shipped into the country, and fastening itself upon the currant, as its natural ally, it began its deadly cycle of warfare. The common name of the disease is white-pine blister rust. It is caused by a parasitic fungus which is dependent upon currant and gooseberry bushes for an intermediate stage of its development.

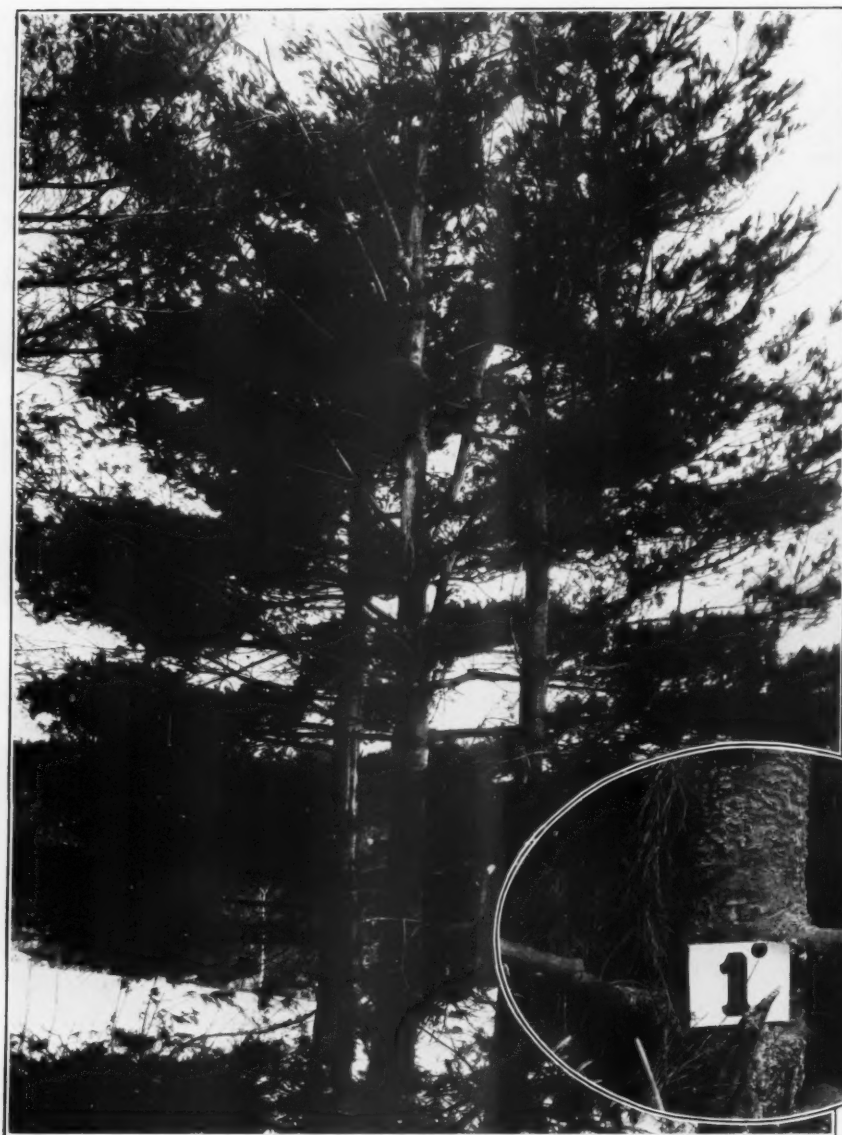
The blister rust spreads from leaf to leaf and bush to bush on the currants and gooseberries throughout the growing season, and from late in June to November it generates a spore, harmless to the currant and gooseberry plants, but which, carried by the wind and lodging on the pine, produces blister-rust infection. These spores are extremely delicate and short-lived. Experiments indicate that they do not retain life longer than ten minutes after being liberated; and right here man seizes an advantage to control this insidious warfare, for under aver-



(New Hampshire Forestry Department)

## ERADICATING THE INTERMEDIATE HOST

The people of New Hampshire value their white-pine forests so highly that they willingly deprive themselves of currant jelly and gooseberry jam. The wagon is loaded with 4,200 bushes of cultivated currants and gooseberries which residents of the town of Newmarket gave to the state as part of their contribution toward blister-rust control in their town. The town also appropriated money to employ state crews to eradicate the wild gooseberry and currant plants.



(Bureau of Plant Industry)

#### HOW THE CURRANT BUSH IS CARRYING ON A WAR OF EXTERMINATION AGAINST THE WHITE PINE

The Pines shown above were New Hampshire neighbors of some cultivated black currants, from which they became infected with blister rust and were eventually destroyed. When the currant plants were exterminated, no more pines became infected. Inset shows close-up view of the blister rust on a young pine near Vancouver, British Columbia. The broken blisters are filled with dust-like spores which spread the rust. (Photograph by Humiston.)

age field conditions the destructive fire of the enemy from the currant to the pine ranges less than 900 feet.

There is, however, one exception: that of the cultivated black currant, which is highly susceptible to blister-rust infection and acts as a fort or center from which the disease spreads with great momentum. Cultivated black currant bushes are dangerous to white pine growing within a radius of a mile of them.

Once reaching the white pine tree, the fungus first attacks the needles of the young twigs. Every twig on the tree may be infected and die a few years later. If only a single twig is attacked, the disease grows back on

the branch from year to year until it girdles the trunk. In either case the rust kills the entire tree, regardless of its size. A diseased pine tree produces great quantities of dry pollen-like spores that can retain their generative power for several months and are easily carried long distances by the wind.

#### THE VICIOUS CYCLE OF DESTRUCTION

The peculiar and interesting thing about these spores is that they are harmless to other pine trees, but when they fall on currant or gooseberry plants they produce a rust on the lower surface of the leaf, and thus the cycle of warfare against the pine again begins.

The blister rust has spread throughout the important white-pine regions of the northeastern states, is advancing in Pennsylvania and the Lake states, and recently has been found in the far West. Extensive surveys show that about 20 per cent of the white pine in northeastern New York and about 7 per cent of the white pine of Maine and New Hampshire are attacked by blister rust in areas where currant and gooseberry bushes are still present. Eradication of the disease is impossible, but it is practicable to apply local-control measures to protect individual white-pine

tracts, large or small, from the ravages of the rust.

Once a tree is attacked by this tiny warrior, it is too late to save it, except in the case of highly valuable ornamental pines, which justify the expense of locating and cutting out the infected branches. Spraying is not effective in preventing the rust in either currants or pines, and is impracticable in the woods. However, so far as cost and effort is concerned, the protection of a white-pine woodlot or plantation from blister-rust damage is less expensive and no more difficult than the control of the potato bug or apple scab. Local control of the blister rust has proved effective in the eastern United States wherever

cultivated black currants have been eliminated from the region and all other currant and gooseberry bushes, wild and cultivated, have been destroyed within 900 feet of the pine stands. The chief requirement is that the work be done systematically, at the right time, and according to simple rules.

In order to accomplish control on a large scale throughout the white-pine regions of the eastern United States, the Bureau of Plant Industry now has over forty blister-rust control agents headquartered with the county agricultural extension agents in counties where white pine is an important part of the farm woodlots. These agents visit the pine-owners, show them the disease, and explain the action necessary to protect the pine. They also carry on general educational work along this line through meetings and demonstrations, in co-operation with the agricultural extension agents. The plan of work in each county is formulated into a definite project. Pine-owners are encouraged to become local leaders in blister rust and forestry projects. The Federal blister-rust control program in the East has a definite time limit of eight years in which to secure protection of the pine lands in the co-operating states. It also provides that the money spent by the Bureau of Plant Industry in the maintenance of the blister-rust agents shall be met, dollar for dollar, by state funds used in assisting the pine-owners to do thorough and effective work in eradicating currants and gooseberries.

#### NOBODY LOVES THE CURRANT BUSH!

This work has the active support of the State and Federal agricultural extension services, and of the State Forestry Departments in each of the New England States, New York, Wisconsin, and Minnesota, under an agreement by which the state furnishes supervision of the control work done by the pine-owners. The state also uses its legal authority to remove currants and gooseberries from lands within the limits of control areas where educational means fail in accomplishing this. The control work is usually organized on a community basis, and land-owners who have currants but no pines seldom fail to co-operate with their neighbors, because the white pine is highly regarded as a community asset.

Some banks in New England require currants and gooseberry bushes to be destroyed within 900 feet of the

pine before money is loaned on farms having white-pine growth. The plan of using blister-rust educational extension agents has been productive of excellent results. The area cleared of currants and gooseberries was 22 per cent greater in 1922 than in 1921 and the cost per acre was less in 1922. The money spent by towns and individuals for control work increased from \$19,000 in 1921 to more than \$45,000 in 1922. During the past field season 472,887 acres in the eastern states have been cleared of these bushes at a cost of less than 20 cents per acre. The white pine growing on this area is safe from the blister rust for at least the next five to ten years. The wild currants and gooseberry bushes grow back slowly and sparsely on protected areas, but when they are again established the control areas must be reworked.

The present organization of co-operative white-pine blister-rust control work in the eastern United States is the first instance of agricultural extension methods applied on a large scale through local agents to a specific forestry problem. The success of agricultural extension methods is based on the interest of the farmer being converted into action through visual demonstration and local leadership. An important result of the work of these agents is an increased interest in better woodlot management on the part of the farmer-owner.

Practically every owner of white-pine growth appreciates its value and desires to protect it. Therefore the blister-rust agent meets with a ready

response. The emergency of the blister-rust situation requires the agent to concentrate his efforts on control of the disease, but the effect of his work is an increased public interest in general forestry. The demand from woodlot owners for specific information on woodlot management has led several county farm bureaus to consider the employment of county forestry extension agents.

#### THE OUTBREAK IN THE WEST

In the western United States white-pine blister rust likewise presents a serious problem. It was first found in British Columbia and western Washington in the autumn of 1921. In co-operation with the northwestern states and the Dominion of Canada, the Bureau of Plant Industry determined the extent of the rust outbreak in 1922. The blister rust was found to have been present on planted white pine in Vancouver, British Columbia, as early as



#### A GRAPHIC LESSON

The county agricultural agent of Warren County, New York, set pine-owners to thinking by means of this window display of blister-rust damage. The exhibit gave convincing evidence of the need for action and ended with "Moral: Eradicate gooseberries before planting pine."



1910. These trees were purchased in 1910 from a nursery in France and are probably responsible for the introduction of the rust. This French nursery also shipped white pines infected with blister rust into the eastern United States. At that time there were no quarantines in the United States and Canada to prohibit importation of white pines from abroad.

Assuming Vancouver as the center of spread, the present known distribution of the rust is north (on pines and

white pines growing close to infected currants are killed by innumerable blister-rust cankers on the twigs. For example, over 200 cankers were counted on only two branches of one heavily infected tree. In this way a tree is killed in much less time than where a single branch is attacked and the fungus grows back on the branch until it reaches and girdles the trunk. The western white pine is even more susceptible to blister-rust attack than the eastern white pine and conditions in the West favor an epidemic of great destructive force.

The fungus is permanently established in the West, but its spread can be delayed and controlled. A vigorous effort is being made to reduce losses from the rust to the minimum. It contemplates delaying the progress of the disease, protecting uninfected areas as long as this can be done at reasonable cost, and meanwhile developing and establishing the best methods of local control for commercially important white-pine areas.

The war against cultivated black currant is the most important part of the effort to delay the rapid spread of the disease. The State of Washington cleared out all cultivated black currant plants from 14 counties in the western part of the state. A total of 69,000 cultivated black currant bushes were destroyed in Washington, of which over 800 were reported as being infected with the blister rust. Oregon and Idaho have new laws permitting the destruction of cultivated black currants and are planning to use various means to accomplish this purpose. Plans are also being made in Montana to secure the elimination of these bushes from the western part of the state.

The western white pine of the Inland Empire and the sugar pine of California and Oregon are by far the most valuable timber trees in the regions where they grow. The present merchantable stand of these species is estimated at slightly more than 57 billion board feet, valued at approximately \$228,400,000. This timber is constantly increasing in value as eastern supplies are exhausted and is nearly three times the remaining stand of eastern white pine. In addition to the 8 million acres of old-growth timber, there are from 12 to 13 million acres bearing young growth in which western white pine or sugar pine should form permanently an important part of the stand.

White-pine blister rust is one of the many destructive pests from foreign shores that has come here to stay. It was brought here on white-pine seedlings imported from Europe and set out in several hundred forest plantations in the United States and Canada. Had the Federal and Dominion quarantines now in effect against importing nursery stock from foreign countries been in existence two or three decades earlier, they would almost certainly have prevented the introduction of the blister rust, chestnut blight, citrus canker, Japanese beetle, and other imported pests we now have to combat.



(Bureau of Plant Industry)

#### THE RESULT OF TOO-CLOSE ASSOCIATION WITH CURRANT BUSHES

This merchantable white pine tree, at Kittery Point, Maine, is dying from the attack of the blister rust. The disease entered the trunk from a branch, about twenty feet above the ground. The trunk is entirely girdled between the points indicated by the position of the man's hands.

currants) to the limits of white-pine growth; east (on pines and currants) to Revelstoke and Beaton, British Columbia, and south (on cultivated black currants) through western Washington to the Columbia River. The infection area lies within a triangle of country approximately 300 miles on a side. Beaton is about 100 miles north of Idaho, and white-pine growth is continuous from this point into the United States.

The blister rust has shown unprecedented severity of damage in western British Columbia. Large trees are killed as readily and rapidly as small ones. The western

**BUY A LIFE MEMBERSHIP.**—Members who subscribe to AMERICAN FORESTRY by the year, or those who are not at present taking the magazine, are missing a rare investment by not investigating the Life Membership proposition. A Life Membership costs only \$100 and, as the name signifies, includes full membership for life in the American Forestry Association and a life-time subscription to AMERICAN FORESTRY.



# Vacation Trips in Central and Western New York

*By the Department of Forest Recreation, New York State  
College of Forestry*

**S**TARTING at Syracuse, this novelty trip of 220 miles, by motor and canoe, takes one to three of New York State's great water wonders: the first at Clark Reservation, the site of the first Niagara; the second at Letchworth Park and the gorge of the Genesee River; and finally to the most spectacular wonder of all—Niagara Falls.

**First day.**—This will be spent in a drive to the Clark Reservation, a recent state preserve, four miles southeast of Syracuse, and return. This reservation, covering 75 acres, incloses a lake one-quarter of a mile in diameter, surrounded by limestone cliffs 200 feet in height. This was the site of the first Niagara Falls, and the lake is the plunge-basin of a mighty cataract that poured over these cliffs. The magnitude of this first Niagara can be imagined by picturing falls as wide as those at present

and with equal volume or greater and two and a half times as high, or about 400 feet. Toward the close of the Glacial Period, when the great ice-sheet still covered Lake Ontario and the St. Lawrence Valley, the vast flood of waters pouring from it sought an outlet eastward down the Mohawk Valley to the Hudson. Here, at Green Lake, as the lake in the reservation is called, this great river plunged and crashed over these limestone cliffs into the valley below. At that time the cliffs were doubtless much higher than at present. After thousands of years it hollowed out this plunge basin to a depth not less than 400 feet below the edge of the cataract and probably greater. After the ice-sheet retreated northward, the liberated waters sought and found an outlet to the north, the present falls were born, and Green Lake became a deep lake surrounded by high, dry cliffs, as at present.



*By courtesy of the New York State Conservation Commission*

## GENESEE GORGE

Serried cliffs uplift from the edge of the rushing river, their tops crowned by the greenery of forest trees. New York has wisely made this one of her great state reservations.



#### LOWER PORTAGE FALLS AT LETCHWORTH PARK

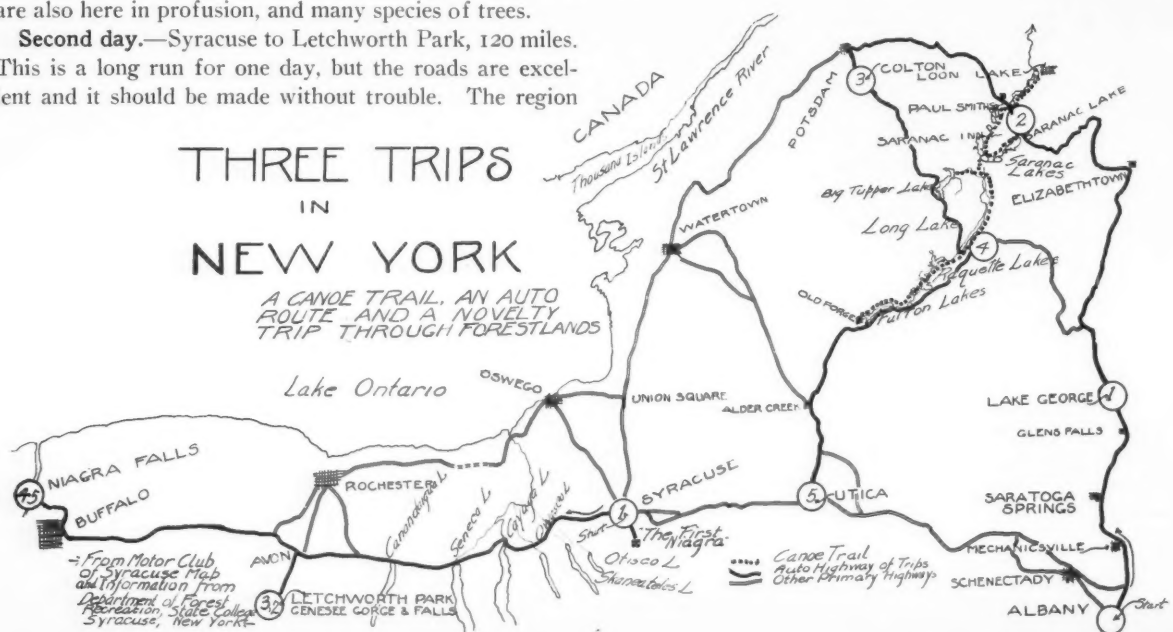
Rushing waters and tree-clad hills make a natural picture of great appeal. New York may well be proud of the scenic beauty within her state preserves.

Erosion has reduced the cliffs to their present height and partly filled up the plunge basin. Within this reservation are found over forty different varieties of ferns, more than on any equal area in the temperate zone. Flowers are also here in profusion, and many species of trees.

**Second day.**—Syracuse to Letchworth Park, 120 miles. This is a long run for one day, but the roads are excellent and it should be made without trouble. The region

traversed is the famous Finger Lake region, called by many the "Switzerland of America." These lakes in order, as we proceed westward from Syracuse, are Skaneateles (15 miles), Owasco (26 miles), Cayuga (40 miles), Seneca (52 miles), and Canandaigua (68 miles). Lying south of these, but off the main route, are Keuka and Conesus lakes; these lakes are made more interesting and beautiful by the many wild gorges which are cut into the steep banks. All are long, narrow, and very deep. The towns traversed are Skaneateles, Auburn, Seneca Falls, Geneva, Canandaigua, Aurora; then south to Mt. Morris and Portage, which is the southern end of Letchworth Park.

**Third day.**—This will be spent in an inspection of Letchworth Park. This park, comprising 1,000 acres, contains the wonderful gorge of the Genesee River, with the three Portage falls, totaling 290 feet in height. The Genesee River at Portage flows through a narrow gorge 250 feet in depth. Just below the high bridge of the Erie Railroad it plunges over the Upper Fall, 70 feet in height, into a deeper gorge. From here the gorge continues at about the same depth to the Middle Fall, where it again drops 107 feet in a sheer fall, resembling the American Fall of Niagara. Below this the walls are precipices 350 feet in height, while the banks slope upward at a steep incline for another hundred feet. Just below the falls are two great curving bays in the river caused by the swinging motion of the fall in its retrograde movement up the valley. A little farther on one comes to Cole Point, where Thomas Cole in 1841 painted the gorge for Governor Seward. From here one obtains a magnificent view back up the canyon to Portage Bridge. A short distance below this are the Lower Falls, a series of irregular cataracts totaling 70 feet in height. Just below them is the Flume, where the river is narrowed down between Table Rock and Cathedral Rock. The



former is a wedge-shaped rock extending out into the gorge. It is separated from Cathedral Rock by a narrow cleft, 64½ feet deep, the Flume, through which the water from the falls rushes in tumultuous rapids. Cathedral Rock is a conical mass of rock rising from the bottom of the gorge to a height several feet above Table Rock. Below the Lower Falls the river sweeps in a great semi-circle to the left into High Banks gorge, through which it flows 14 miles to Mt. Morris. That portion of the river in the park is about three miles, extending from a point 3,300 feet south of Portage Bridge to a point 2,000

"The incomparable grandeur of Niagara depends on this wonderful manifestation of energy working only to produce the glory of movement, color, and intonation and existing in an environment of magnificent distances." The Niagara River above the Falls flows west, breaking into smaller cataracts just above the great plunge. Below the Falls it flows north through the picturesque and beautiful gorge, past the mysterious Whirlpool, and on into Lake Ontario. Goat Island divides the American from the Horseshoe Fall. The international boundary passes through the center of the Horseshoe Fall.



*By courtesy of the New York State Conservation Commission*

#### AN INDIAN PASS IN THE ADIRONDACKS

A world of wilderness outstretches before the hiker's gaze when he reaches this pass on the line of an ancient Indian highway—a tempting field of investigation.

feet north of the Lower Falls. It is one of the wildest canyons east of the Rockies and one of the most beautiful.

**Fourth day.**—Letchworth Park to Niagara Falls, 90 miles, via Warsaw, Varysburg, East Aurora, Buffalo, and Niagara Boulevard. This is one of the great dairy and fruit sections of the state and contains Buffalo, the state's second largest city, with a population of about 600,000.

**Fifth day.**—This will be spent at the Falls. Here, of course, is the supreme water-wonder of the state and of the East. The vast volume of water which plunges over the 160-foot precipice, amounting to 183,000 cubic feet per second, alone renders the Falls supreme in grandeur. F. C. Shenahon, in a report to Congress in 1914, said:

These Falls, famous all over the world, are at present of the following dimensions: American Fall—length, 1,035 feet; depth, 3 feet; height, 160 feet; Horseshoe Fall—length, 2,450 feet; depth, 10 feet; height, 160 feet. This makes a total length of crest of 3,485 feet, or 2/3 of a mile. The best views are obtained from the Canadian side, and to stand on the edge of the Horseshoe Fall and look across its 2,500 feet of curling emerald crest above and robe of pure white below is to see one of the grandest and most inspiring sights that this old earth affords.

This completes the trip, one that can easily be made over good roads, and it is one that competes successfully

with any trip of equal length in all America for scenic grandeur and natural beauty.

### *In Your Car Through the Adirondacks*

A 500-mile auto trip through the Adirondacks of New York State, in which the tourist touches nearly every point of interest and scenic attractiveness, is now possible in six days, without fatigue, on the splendid highways which wind through this scenic region.

**First day.**—Albany to Lake George, 68 miles, via Troy, Mechanicsville, Saratoga Springs, with the famous mineral springs, where the State Conservation Commission maintains a 600-acre reservation. Side trip up Lake George, "The Queen of Mountain Lakes," by boat to Ticonderoga or by auto to Bolton Landing (10 miles).

**Second day.**—Lake George to Saranac Lake, 100 miles, via Chestertown, Pottersville, Schroon Lake, Elizabethtown, Keene, and Lake Placid. This run takes one up through the eastern Adirondacks, past beautiful Schroon Lake and Schroon River, through Elizabethtown, over Hurricane Pass, into Keene Valley, on the eastern side of Mt. Marcy (5,344 feet above sea-level), the highest peak in the state, and thence to fashionable and beautiful Lake Placid, watched over by Whiteface (4,372 feet), and finally to famous Saranac Lake, the resort center of the mountain region.

**Third day.**—Saranac Lake to Colton, 77 miles, via Saranac Inn, Lake Clear, past the St. Regis Lakes, Paul Smith's, Meachem Lake, St. Regis Falls; thence west over the St. Regis River to the Racquette River and Potsdam; thence south along the Racquette to Colton. This takes one into the northern Adirondacks, reaching "farthest north" at Potsdam, only 18 miles from Canada. It also covers the eastern portion of the lake region of the mountains.

**Fourth day.**—Colton to Long Lake, 65 miles. Up the Racquette River to Tupper Lake; thence along Big Tupper to Little Tupper; thence east, over a dirt road, to Long Lake. This takes one through the western portion of the Lake Region, past innumerable lakes and ponds. Long Lake, our destination, is really a widening of the Racquette River, about 15 miles long and a mile wide at the widest place.

**Fifth day.**—Long Lake to Albany, via Indian Lake, Johnstown, and Fonda, 130 miles. This last lap of the journey is down the famous and beautiful Mohawk Valley, over a perfect motor road, and one should arrive in Albany in ample time for dinner at night. This schedule should be easily made by any automobile without running over nine hours a day.



INDIAN LAKE

*By courtesy of the New York State Conservation Commission*

Only a few short miles from the throbbing city one may strike lines of travel used today as they were in the Colonial times. New York's mountain lakes invite multitudes to seek recreation there in canoe travel.



### *By Canoe Through the Adirondacks*

An ideal canoe trip through the Adirondacks has been outlined by the New York Conservation Commission. The trip starts at Old Forge, 58 miles north of Utica, New York, and continues northeasterly 90 miles to Loon

fourth mile, paddle one-half mile, carry one-half mile, and put in on the southern tip of Long Lake. A side trip is possible to West Mountain (2,919 feet) and to Blue Mountain Lake by paddling up the Marion River for six miles to the carry (three-fourths mile); thence through Utowana and Eagle lakes to Blue Mountain



NIAGARA

This world-renowned water spectacle is the climax of a novel trip through scenic New York. The trip starts with the site of the original Niagara, many miles from its present location, and ends with the existing reality of the mighty sweep of the monarch of waterfalls.

Lake. It may be divided into six stages, as follows: Fulton Chain Section, Racquette Lake Section, Long Lake Section, Tupper Lake Section, Saranac Lake Section, and Paul Smiths Section.

**Fulton Chain Section.**—Starting from Old Forge, you paddle upstream one and one-half miles to First Lake, across this to Second and Third, which are connected by narrows, but are all really one lake. A narrow, winding stream leads into Fourth Lake, which is five and one-half miles long. A narrow inlet leads into Fifth Lake, which is a small pond. Here is the first carry, one-half mile, into Sixth Lake, and thence into Seventh. The carry from Seventh into Eighth is one mile long, with a good trail. Eighth Lake is about one and one-half miles long, and from the upper end of it you carry one and one-half miles across the low divide between the Moose and Racquette rivers and put in at Brown's Tract Inlet on Racquette Lake. A side trip may be made to Rondaxe Mountain Fire Tower (2,300 feet elevation).

**Racquette Lake Section.**—The route leads northerly across Racquette Lake for six and one-half miles; thence by carry one-half mile into Forked Lake. The latter is three and one-fourth miles long. When you reach the outlet, the Racquette River, a carry of one and one-half miles is necessary to avoid rapids in the stream. Then you put in for a mile, to Buttermilk Falls, carry one-

Lake. From here one can climb Blue Mountain (3,750 feet) to the observation tower.

**Long Lake Section.**—Long Lake is 15 miles long, and at the northern end you again enter the Racquette River. Five and three-fourths miles below Long Lake you come to Racquette Falls and the one and one-fourth-mile carry around them; then you can paddle five and one-half miles to Axton. Side trips are possible to Owl's Head Mountain (2,780 feet), Kempshall Mountain (3,360 feet), and to Hendrick's Spring, which is on the divide between the watersheds of the St. Lawrence and Hudson rivers.

**Tupper Lake Section.**—The main route divides at Axton. To go to Tupper Lake, you continue down the Racquette River 13 miles to the head of Big Tupper Lake, whence you can paddle to Tupper Lake village and the railroad. Here this stage of the trip ends, unless you intend to paddle down the Racquette to the St. Lawrence, a distance of about 40 miles. There are numerous falls and rapids in the Lower Racquette. A side trip to the foot of Tupper Lake (six miles) is possible and also one to the top of Mount Morris (3,163 feet).

**Saranac Lake Section.**—To continue with the other main route, you leave the Racquette at Axton and carry two and one-half miles over "Indian Carry" to Upper

Saranac Lake. You then paddle seven and one-half miles to Saranac Inn. To go to Saranac Lake village, you leave Upper Lake about a mile from where you put in and follow the eastern inlet one mile to Bartlett Carry (one-half mile), and thence through Middle and Lower Saranac lakes to the village. Side trips are possible to Mount Ampersand (3,365 feet), and by canoe through the numerous small lakes and ponds lying north of Upper Saranac Lake, about 20 in number. Railroad connections can be made at Saranac Inn and Saranac Lake.

**Paul Smiths Section.**—The main route continues from Saranac Inn over the route of the Seven Carries. From the inn you carry one and one-half miles to Little Green Pond, paddle one-half mile across it, carry one-eighth mile to Little Clear Pond, paddle across it, carry three-eighths mile to St. Regis pond, follow east shoreline a short distance, carry one-eighth mile to Green Pond, paddle one-fourth mile across it, carry one-fourth mile into Little Long Pond, paddle northeast for one mile, carry one-eighth mile into Bean Pond, paddle one-fourth

mile across it, carry one-fourth mile into Upper St. Regis Lake. From here you paddle three and one-half miles through this lake, Spitfire Lake, and Lower St. Regis Lake to Paul Smiths; then you carry one mile to Osgood Pond, paddle across it and up the outlet to Lake Lucretia, cross the latter, carry one mile into Rainbow Lake, paddle three miles over it; thence down the Saranac River to Lake Kushaqua and Mud Lake; carry one and three-fourths miles to Loon Lake and your journey's end. Railroad connections are made here with the New York Central and the Delaware and Hudson railroads.

The whole region traversed by this trip is for the most part heavily wooded, often with virgin forests; is watched over by the high peaks of the Adirondacks; abounds in fish and game, and is as untouched, or nearly so, as when it served as the waterway for the Indians and trappers of long ago.

Camping facilities are afforded by the state lands on the shores of most of the lakes and streams traversed. It is an ideal week's trip for a canoe.

## National Conservation Association is Merged with American Forestry Association

AT a meeting of the Board of Directors of the American Forestry Association held on April 24 the proposal of the National Conservation Association that it consolidate with and become a part of the American Forestry Association was approved. The consolidation became effective on June 1, at which time the members of the National Conservation Association automatically became members of the American Forestry Association, receiving all privileges of subscribing membership.

"The National Conservation Association was organized at the time when the integrity of the system of national forests and the whole conservation movement was in serious jeopardy," said Colonel Graves, President of the American Forestry Association, in announcing the consolidation to the press. "It was a powerful force in sustaining what had already been achieved, and it has played an outstanding rôle in forwarding national conservation during the last twelve years. The association had great influence in the development of Federal water-power policies, in the legislation governing the use of coal, oil, and phosphate deposits on the public domain, and various other features of policy relating to natural resources. The country is deeply indebted to Mr. Gifford Pinchot, Mr.

Harry Slattery, and other officers of the Association for the public service and achievements provided by the Association.

"Most of the problems of conservation are today within the field of the American Forestry Association, which seeks to make our forests and related natural resources of the highest possible service in building up the country and in safeguarding the interests of the public. The protection and right use of our forests, the provision for a continued supply of forest products, the development of the recreational service of the forests, the building up of public forests and parks, the protection and intelligent handling of wild life and fisheries, the use and reclamation of forest lands, are all functions of the American Forestry Association, as they have been of the National Conservation Association.

"The American Forestry Association welcomes the consolidation with the National Conservation Association. It will forward the conservation movement with vigor and fearlessness, and I hope that in this great work it may have the continued support of all members of the Conservation Association and of all friends of conservation throughout the country."

## New Booklet on Trees

In response to many requests for a booklet describing the more common trees of the District, the American Forestry Association has published a booklet entitled "Forest Trees of the District of Columbia, How to Know Them, Where to See Them." It is pocket size, 5" x 9". Each of the 64 pages gives the distinguishing character-

istics and location in the District of one or more common trees. The leaves and fruit of each tree are appropriately illustrated. The booklet is having a good sale at the leading bookstores and hotels in the District. Price is 25 cents per copy. If ordered by mail, 5 cents should be added for postage and handling.

# White Birch Chosen to Honor Mothers

THE white birch has been chosen as "Mothers' Tree," and on Sunday afternoon, May 13, Mothers' Day, the initial tree was planted on the shore of Lake Antietam, marking its dedication.

Strangely enough, the world has planted trees to heroes, to causes won and lost, but no trees to mothers. The white birch was selected because its dignity and beauty,



PLANTING THE FIRST "MOTHERS' TREE"

On the shore of Lake Antietam, at Reading, Pennsylvania, on the afternoon of Sunday, May 13, "Mothers' Day," the white birch was dedicated and planted with appropriate ceremonies.

the sheltering, caressing manner of its growth, and its whiteness seem to typify the mother qualities, to be emblematic of that love which hovers over our cradles and guards us through the storms of life—never failing, sublime. And it is a tree, as well, which will grow almost anywhere, if transplanted with care and at the proper time.

The thought and hope is to nationalize the custom of planting this particular tree, at all times and in all places, by individuals as well as by organizations, to honor the mothers of the nation. The American Forestry Association has endorsed it as a national custom, to the end that

thousands of beautiful white birch trees may stand, before many years, as lasting tributes to motherhood.

In using the term "white birch" the particular variety is left to individual choice, but the preferred species for general planting as Mothers' Tree is the European form—*Betula lacciniata*—the Weeping White Birch, as it is called, because of its drooping branches. If, however, a Paper Birch is preferred—*Betula papyrifera*—it can be planted with success in the northern tier of states, almost from ocean to ocean, extending into New York, Pennsylvania, Illinois, and Nebraska, and northward almost to the Arctic Ocean. In fact, few trees of this country have a more extensive range than white birch and the beauty of the individual tree is too well known to need further comment.

The sentiment was crystallized by and the initial planting done under the auspices of Mr. Solan L. Parkes, of Reading, Pennsylvania, and the spade with which this first "Mothers' Tree" was planted is to be properly inscribed and presented to the American Forestry Association.

Mrs. Harding, who is a Vice-President of the Association, wrote a cordial letter of endorsement, a copy of which is reproduced herewith, when the plan was brought to her attention.

THE WHITE HOUSE  
WASHINGTON

May 11, 1923.

My dear Mr. Butler:

It is a pleasure to endorse every appropriate program which looks to extending the custom of planting and, beyond that, of properly caring for the beautiful trees with which our continent has been so richly endowed. There is urgent need for giving this encouragement in all possible ways; and every occasion which can be made justification for putting out more trees, especially under such auspices as will give them special insurance of the care and attention they need, is deserving of all commendation.

Most cordially yours,

Mr. Ovid M. Butler,  
Editor, American Forestry,  
914 - 14th Street,  
Washington, D. C.

*Frances Kling Harding*

The American Forestry Association urges the planting of Mothers' Trees not only on Mothers' Day, but on all days, and asks its members and all readers of AMERICAN FORESTRY to help nationalize this beautiful custom.





# Planting Evergreens on the Home Grounds

BY WINFIELD A. KIMBALL

**J**UST as soon as the frost is out of the ground conditions are at their best for transplanting conifers about the home grounds or for reforesting open areas. The nurseries are busy at this time preparing shipments of trees for this purpose, and usually a better selection can be obtained early in the season. One can of course plant during the latter part of July and through to September, but if one waits until the latter month it is necessary to watch weather conditions more closely. If the season has been extremely dry or unusually wet, it is not advisable to attempt fall

planting.

The most popular evergreens for decorative purposes seem, of late years, to be blue spruce, white spruce, and concolor fir. A second choice would be white pine or hemlock. Often very beautiful effects are obtained by planting mixed groups, with occasional single trees near by.

Assuming that you are interested in getting seedlings or transplants for planting, a few

points are given as to the care of them after arrival. Most nurseries are quite careful to prepare trees for shipment so that you will receive them in excellent condition, and the care you give them upon arrival will determine, in a large measure, the successful growth of your trees later.

The trees should be taken out of the boxes in which they are shipped as soon as possible after arrival, the bundles untied, and the trees "heeled-in." This is done by digging a shallow trench from five to six inches deep,

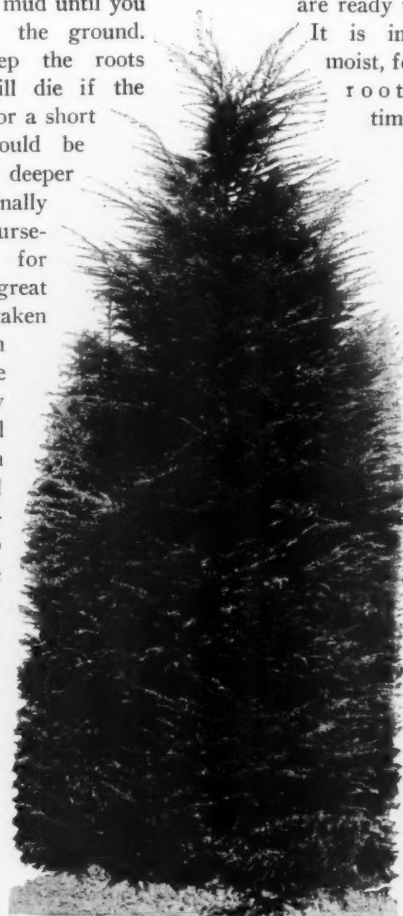
depending upon the size of the trees, and placing them in the trench at an angle of forty degrees, with the tops facing the sun. The trees will keep better if they are spread through the trench rather thinly and covered with moist earth up to within two or three inches of the top. It is well to water the trees lightly at this time. Trees prepared in this way will keep for several days.

When you are ready to transplant the trees it is advisable to keep them in a pail with the roots submerged in a puddle of thick mud until you are ready to place them in the ground. It is important to keep the roots moist, for young trees will die if the roots get dry, even for a short time.

The trees should be planted a little deeper than they originally stood in the nurseries, to allow for settling, and great care should be taken to plant them firmly in the ground. They cannot be planted too firmly. In planting small tracts two persons can work to advantage. One goes ahead, making holes with the "grubbing hoe," while the other follows and plants. For commercial purposes, where there is a market for Christmas trees, it might be ad-



COLORADO BLUE SPRUCE



THE BEAUTIFUL HEMLOCK



visible to plant spruce or fir among pine. If the pine are planted six feet apart, the spruce and fir can be planted between, at a distance of three feet from the pine. In six or seven years the spruce and fir can be cut out and sold for Christmas trees. The income derived from the sale of the trees will cover the total cost of all the planting and will also cover the interest on the money invested. You still have your pine standing at about the

right distance apart for future growth. There is a good market for Norway spruce for Christmas trees, and as they grow about as fast as pine, this species might be desirable for this purpose.

Planting solely for timber, it is best to have the trees placed about six feet apart. If they are planted at greater distances apart they are apt to become "limby" and make poor timber.

## Silver Elms Mark Massachusetts Dedication at Lincoln Memorial

*Bay State Plants Forty Elms Bordering "Massachusetts Avenue of Memorial Trees" at the Lincoln Shrine*

UNDER the auspices of the Massachusetts Society of Washington, D. C., a distinguished gathering assembled at the Lincoln Memorial Shrine on May 4, 1923, to plant and dedicate forty trees to the

martyred President whose noble life has ever been an incentive to those who strive for better things—Abraham Lincoln.

In this party were such prominent men as Senator



THE BAY STATE PLANTING AT THE LINCOLN MEMORIAL

Tenschert & Flach

Henry Cabot Lodge, Lieutenant-Governor Alvan F. Fuller, of Massachusetts; Congressman Frederick Dalinger, Congressman John Jacob Rogers, Mayor James P. Curley, of Boston, and thirty-eight other mayors of Massachusetts, who came to do honor to their country, their state, their city, and to the man whose name stirs the heart of every patriot.

A tree was planted in the name of the State of Massachusetts by Lieutenant-Governor Fuller and each mayor planted a tree in the name of his city. The forty trees, silver elms, will form the avenue running southeast of the Memorial to the reflecting pool, and it will be known as the "Massachusetts Avenue of Memorial Trees."

Because of her prestige as the mother state of the Union, Massachusetts was allowed to plant the greatest number of trees, and she also enjoys the distinction of leading off with tree-planting exercises at the Memorial.

Other state societies in Washington will arrange tree-planting exercises from time to time until the different avenues and approaches to the Memorial are taken care of in this manner. The idea originated in Mrs. Harding's suggestion of beautifying the grounds in this way.

George L. Cain, Vice-President of the Massachusetts Society of Washington, saw in this movement a splendid opportunity of historical note for his state and his society and arranged a three-day program in honor of the event, to which he invited the Governor and thirty-nine mayors of Massachusetts, in the name of the Massachusetts Society.

The exercises at the Lincoln Memorial were dignified and impressive and men of note paid due respect and homage to the martyred President. In tributes of eloquent speech they epitomized Lincoln, the most human of our national figures.

### Disabled Veterans Plant Memorial Tree at Arlington

One of the most simple yet impressive ceremonies in the annals of the national cemetery at Arlington, Virginia, was the dedication of an American Elm in the shadow of the Unknown Soldier's grave on Memorial Day under the auspices of the Disabled American Veterans of the World War. The elm, which will stand as a silent token of reverence for the tens of thousands buried on the beautiful hill overlooking the national capital, was contributed by the American Forestry Association, through the courtesy of the Amawalk Nurseries of New York.

All three branches of the national defense participated in the simple service. Following a prayer by a naval chaplain, an army squad fired the salute, and Mrs. Harding, wife of the President, then dedicated the tree to the World War dead. Taps sounded by a marine bugler ended the service.

The idea was conceived by the men who bear the scars of service and the American Forestry Association participated by offering the elm that will stand for generations over the remains of the men who fell in action overseas.

### Colonel Greeley Receives Distinguished Service Medal

In recognition of his exceptionally meritorious and distinguished services during the World War, Colonel William B. Greeley, Chief of the United States Forest Service, received the Distinguished Service Medal from the War Department on April 25. Colonel Greeley, who was with the forest engineers in France from August, 1917, to July, 1919, also received the Legion of Honor medal from the French Government and the Distinguished Service Order from Great Britain.

The citation accompanying the conferring of the Distinguished Service Medal mentioned Colonel Greeley's long service with the American forces in France, where from June, 1918, to July, 1919, he supervised the operations of all forestry troops in France.

E. A. Sherman, Associate Forester of the United States, called attention to the fact that by a singular coincidence Colonel Greeley received his decoration from the War Department during the week of April 22-27, Forest Protection Week.

"It is more than fitting that Colonel Greeley's services to his country in war times should be emphasized through the bestowal of the Distinguished Service Medal during Forest Protection Week, in the success of which he is so deeply interested. I am sure that but few men, if any, have done more to advance forestry in this country than Colonel Greeley, who as head of the Forest Service is no less fighting for his country in fighting for conservation of our forests than he was in those stirring days of 1917 and 1918."

# Flowering Trees and Shrubs of the Lower Rio Grande

BY KATE PEEL ANDERSON

THE character of the vegetation of that section of the United States called the Lower Rio Grande Valley, "where the green plants of earth spring forth in wild luxuriance," is distinctive enough and lovely enough to deserve a more general recognition that it now enjoys.

It is subtropic and practically all of it belongs to the Acacias and the suborder Mimosæ, although there are a few specimens belonging to neither and said to be found nowhere else in the world save in the northeast portion of Mexico, contiguous to our own border.

For some reason or other, both the Mimosas and Acacias, for me, spell *romance*; and whoever knows the chaste delicacy of the Mimosa, "weak with nice sense," as the elder Darwin sang, can easily imagine the tender charm of this luxuriant subtropic region, with its myriad of blossoming things belonging to this alluring family. Numerous indeed are its members, for, according to botanists, it is said to embrace six tribes, twenty-nine genera, and about thirteen hundred and fifty species, the greatest number of which are found only in the tropics. Enough, however, are native to the Rio Grande Valley to quite overwhelm the amateur who would classify them.

The Acacias, Mimosas, and Cæsalpinas, of which there are a number, are so closely allied that a mistake in their classification by the layman is quite pardonable.

Perhaps the most striking and distinctive of all the trees of this section, however, belongs to none of these groups and is one of those peculiar to this region alone. It is the lovely, ever-blooming, broad-leaved Anacahuíta (*Cordia boissieri*). This tree not only seems to blossom every day in the year after reaching maturity, but is practically born abloom, as I have seen a tiny shrub of two or three feet high topped with a brave white blossom which seemed saucily to call out to one, "Good morning; have you blossomed today?"

In every part, the Anacahuíta is interesting. The trunk is itself unique—rough, hoary, and gnarled, as if starting life well fortified against the pricks of fortune. The leaf is broad, rather thick and somewhat rough, and the blossom a creamy, crinkled thing of beauty. Mingling with the flowers, and quite as charming as they, are big clusters of the fruit inclosed in an outer shell. When the shell drops away, the pale greenish-yellow fruit is disclosed. About the size of an olive (the tree is sometimes called the wild olive), it is sweet and insipid to the taste,

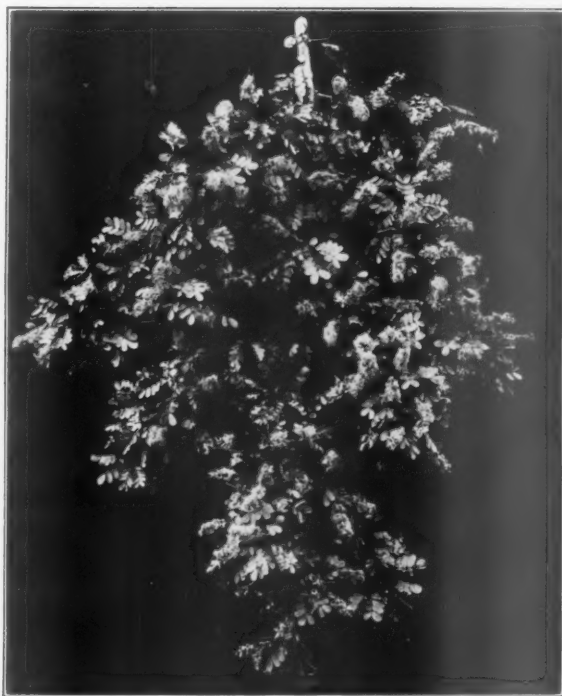
but contains some property that is valuable medicinally. The Mexicans make a very efficacious cough medicine of it.

Closely akin to the Anacahuíta, both in name and habits, is the Anacua (*Ehretia elliptica*). This big sister of the Anacahuíta does its best to keep pace in the blooming and fruiting business, but succeeds in producing only twice yearly, when it is a veritable snow-bank of tiny, fragrant blossoms, growing in lacy sprays along the entire length of the branch and followed by a mass of rich berries varying in color from green to orange and brown. It is impossible to pass so lovely a thing, either in fruit or blossoming season, without stopping before it in admiration.

The largest and most beautiful in foliage belong-

ing to the Mimosa group is the evergreen Tepeguaje, the delicate bipinnate leaves of which are so sensitive to the touch that the passing of a cloud over the sun, it is said, is enough to change the position of the leaflets. In the spring it is covered with small yellow blossoms of a faint fragrance, and lovely indeed, then, are its drooping, feathery branches, as they bend and sway to every passing breeze. One loves the Tepeguaje.

Another almost perpetual bloomer is the exquisite Retama (*Parkinsonia aculeata*), or Spanish broom. This, too, is a large-spreading tree of most dainty foliage, an open crown and zigzag, thorny branches clothed with a



The yellowish-white blossoms of the Ebony, handsomest of the acacias, grow in profuse, downy clusters during June and July.



*A variety of Maguey with distinctively striped leaves. This plant is a prolific grower, though it does not reach its greatest perfection in the Rio Grande region.*

green bark. The long, exceedingly narrow leaves are pinnate and are even lighter and more feathery than those of the Tepeguaje. The drooping, plume-like branches are covered with delicate yellow blossoms touched with pink, and when the tree is in full bloom it is difficult to restrain oneself from saying, "This is the most beautiful thing in the Rio Grande Valley."

The Huisatche (*Vachellia*), belonging to the Acacias, has a much wider range than any of the others mentioned, but is also one of rare beauty. The foliage is dainty and of a most charming texture and blue-green color, looking always as if clothed in mist. The blossoms, much used by the French in perfumes, who cultivate the trees for this purpose, are small and yellow. The tree itself is so fragilely lovely that it scarcely needs a blossom to enhance its beauty.

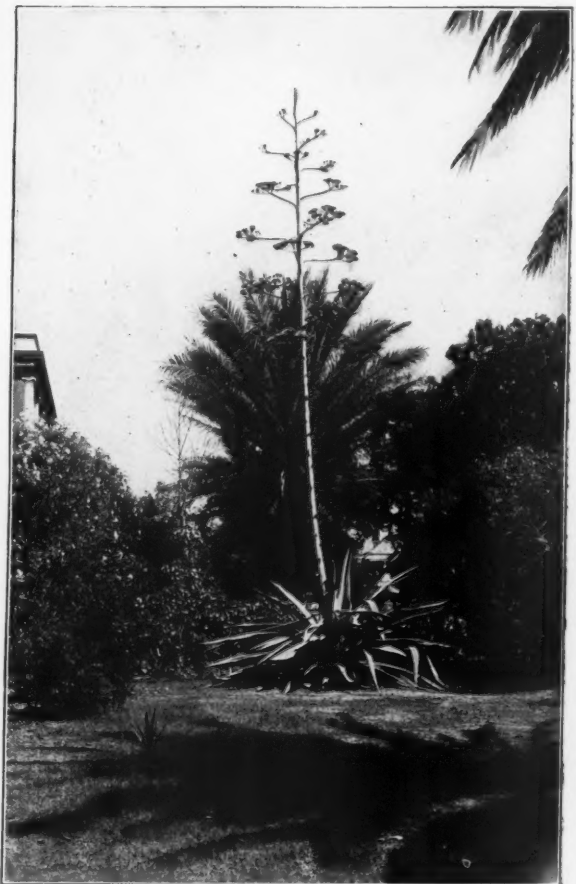
The handsomest of all the Acacias (so many crowd one for first place) is the strong, straight-trunked ebony, with its stiff, flowing foliage standing out so brilliantly among its fellows. I cannot, in fact, recall a lovelier sight than a group of this species, with their light trunks and dark, glossy, rich foliage, looking much like fine old orange trees. Their yellowish-white blossoms grow in downy clusters and are most profuse during June and July.

The better-known Mesquite (*Prosopis glandulosa*) is

not unlike the ebony in general appearance, though of a more drooping and not so brilliant foliage. It is an invaluable tree for arid countries, has a hard, brown wood taking a high polish, and it is also extensively used for paving blocks, fuel, etc. The blossom is quite like that of the ebony, but has in addition a long, heavy bean-pod, which when ripe is sweet and nutritious, making a valuable food for man and beast. The versatile Mexican also manages to make a fermented beverage of it. The tree is rich in tannin and yields a gum used in confectionery, as well as a large quantity of honey. Aside from its utilitarian qualities, the Mesquite, with its large spreading branches, is among the handsomest of trees.

The Tenaza in bloom! How can I make those unacquainted with it see it laden with its gossamer balls of ethereal beauty! To come upon it suddenly, as I did, a stranger to its existence, is to be able to understand the transport of gratitude that caused Linnæus to fall on his knees at his first sight of the furze and thank God for thus beautifying the earth.

The foliage and general appearance of the Tenaza does not differ greatly from the other Acacias, but somehow it is more spiritually, more evanescently, beautiful. Because of a vicious little curved thorn which one would not sus-



*The Maguey (*Agave Americana*), commonly called the Century Plant because of slow growth; one of the most beautiful and distinctive of the native plants of the Rio Grande and "the miracle of nature" to the Aztecs.*

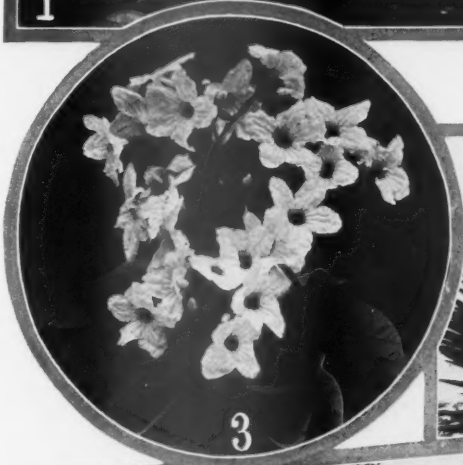




1



2



3



4



5



7



6

## TYPICAL FLOWERING TREES AND SHRUBS

1. Agaves adapted for hedge use around a small ranch. 2. *Anacua* in full bloom. This tree blossoms in a night, covering itself with exquisitely dainty white flowers. 3. Detail of the crinkled, creamy blossoms of the *Anacahuita*. 4. The "majestic lily of the tropics" (*Yucca aloifolia*), bearing at the top of its great flower-stalk a gigantic cluster of pendent, creamy-yellow blossoms. The plant is called by the Mexicans "Lluvia de Oro," Shower of Gold. 5. The *Tenaza*, a tree of beauty in the perfection of bloom. 6. The strong *Ebony*, looking somewhat like a fine old orange tree. 7. The evergreen *Tepeguaje*, largest and most beautiful of the *Mimosa* group.



*Tendrils of the beautiful, though non-fragrant white violet vine.*



*Exquisitely dainty coral blossoms of Coronado de la Reina.*



*Tenaza in bloom—gossamer balls of ethereal beauty.*

pect so lovely a thing of harboring, the Mexicans call the tree the *Uña de Gato* (cat's claw).

Among the smaller blooming trees that do their bit toward keeping this country beautiful at all times of the year is the Desert Willow (*Chilopsis saligna*). It is of the graceful, drooping willow type, with blossoms of

four color varieties—white, pink, yellow, and purple.

Quite the most interesting of the tree-shrubs, though lacking somewhat in the charm of the others, is the curious Corallilio. A handsome, glossy heart-leaved thing, it blossoms laboriously, it seems, in long coral spikes which never quite succeed in fully opening. The leaves fall late in the



*June-blooming flowers of Acacia Arabica, called "Flowers of St. John."*



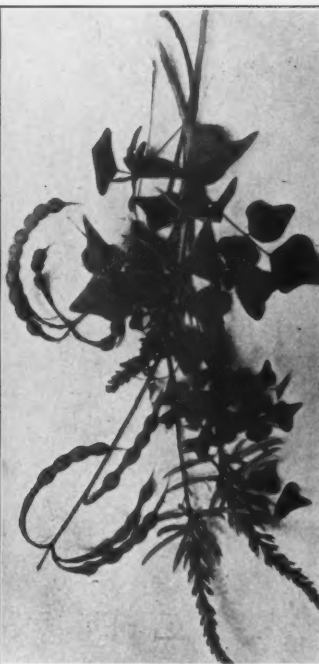
*Caesalpinia Pulcherrima, or Bird of Paradise, flaming forth in brilliant colors.*



*Gowned in royal purple is the beautiful Alhucema, with its soft, sage-green foliage.*



*The rich berries of the Anacua, varying in color from green to orange and brown.*



*Corallilio, with glossy, heart-like leaves and long, coral spikes of bloom.*



*Drooping, plume-like branches of Retama, covered with delicate yellow blossoms.*

year, and the blossoms, with their little snake-like bodies, appear first on the gaunt branches, presenting rather a sinister appearance. The Corallilio gets its name, I fancy, from the venomous little tropical snake of the same name; or perhaps it's the other way around. At any rate, the shrub is said to be as poisonous as the snake.

If one is somewhat depressed by the sight of the self-repressed Corallilio, one has only to glance at the saucy insouciant Esperanza, which seems omnipresent in this country and which hails one unceremoniously with a gay "Cheer up; I'm here—and my name is Hope!" Looking into its gladsome face, surely the most despondent could



*The strange, spotted blossom of the charming Duck Vine, or Aristolochia.*



*The flower of the beautiful blooming shrub called "Friendship of the Day."*



*Barra de San Jose, with distinctive foliage and flowers partly in bloom.*



UPPER—The lovely, ever-blooming, broad-leaved Anacahuita (*Cordia boissieri*), a tree that blossoms every day in the year.

MIDDLE—Not unlike the ebony in general appearance, the mesquite (*Prosopis glandulosa*) is an invaluable tree for arid countries.

LOWER—Another almost perpetual bloomer is the Retama (*Parkinsonia aculeata*), or Spanish broom.

hardly refuse the invitation to be of good hope. With a glossy evergreen foliage and large clear yellow, tubular blossoms, which are seldom absent, the Esperanza is well worthy of its cognomen.

Born in the purple is the beautiful Alhucema, a large spreading shrub which reigns throughout the months of May and June in truly regal splendor. Its foliage, of a lovely soft sage-green, has the same aromatic qualities as the sage itself. Its blossoms come in long, compact spikes in May and June.

For about three months in the year, from July to October, the woods throughout the Rio Grande delta are aflame with what the Filipinos call the Fire-tree, the Mexicans, the Bird of Paradise, and the unimaginative botanist, the *Casalpina pulcherrima*, the most striking and brilliant of all the group when in blossom. It is a large, straggling, prickly shrub, with abruptly bipinnate leaves, long, flat, sessile, unarmed seed-pods, and large pyramidal clusters of red blossoms fringed with orange, the petals having long, stripe-like claws. A big bunch of red stamens suggests the plumage of the Bird of Paradise, for which the Mexicans have named it. The shrub is in cultivation throughout the State of Texas, but grows in wild profusion in the woods of the Rio Grande Valley.

In contrast to the flamboyant beauty of the *Casalpina pulcherrima*, we have the unobtrusive, but once known always loved, little Barradulce, meaning literally "sweet stick"; and truly sweet is the tiny white blossom growing on the slender white stem, with small, gray-green leaves. Much like the Barradulce, though of larger foliage, is the Ciniso, or Ash Plant, which derives its name from the ashen hue of its foliage. The blossoms of the Ciniso come in purple clusters and have a fragrance all their own.

The leguminous shrubs also furnish several very interesting things, the handsomest perhaps, being the Frijolito, or Frijollo (*Sophora secundiflora*). Evergreen, with deep compound leaves divided into numerous leaflets and with clusters of violet butterfly-shaped blossoms which are so heavy in perfume as to cause headache, the shrub attracts and holds attention. Following the blossoms come large woody pods with three or four brilliant red seeds containing a poisonous alkaloid, sophorine. The Huajillo, another variety, bears a handsome white blossom very rich in honey.

An emigrant, I think, but one which is seen everywhere in this section, and for that reason may be considered at least semi-native and having more character than any other tree of the valley, is the stunning Papaya. While its





UPPER—The Huistache (*Vachellia*) belongs to the acacias. The foliage is dainty and of a charming blue-green color and the blossoms of this tree are much used by French perfumers.

LOWER—Born to the purple is the beautiful *Alhucema*, magnificent when in bloom, during the months of May and June. The foliage has the aromatic quality of the sage itself.

fruit does not reach the same huge proportions as in Mexico, where it flourishes and is called the melon zapote, it does remarkably well here, and the fruit grows to about the size of a small cantaloupe. The tree is tender and succumbs easily to frost, but it is of such rapid growth and bears at such an early age that an occasional freeze matters little. The trunk is vertical and interestingly marked with cicatrices made by falling leaves. The large seven-lobed leaves are lovely and droop in a protective way over the fruit. The blossoms of the female species are few and large; those of the male, which is usually found side by side with its consort, are small, fragrant, and profuse, creamy-yellow in color on a very milky stalk. The fruit, which contains a large amount of pepsin, is said to be the finest vegetable digestant known. Both the leaves and fruit have also the peculiar quality of making meat tender, and the natives hang their meats in the branches of the tree for that purpose.

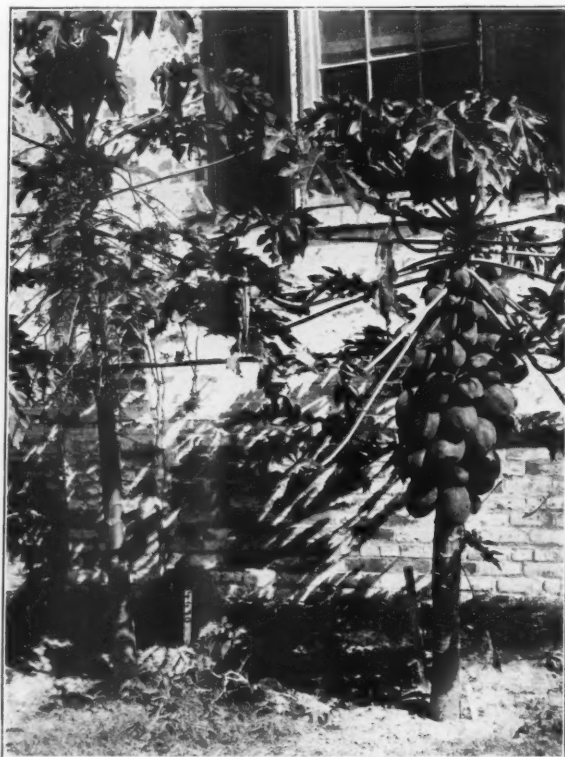
Stateliest and most imposing among the flowering plants of this country, one must concede the palm to that "majestic lily of the tropics," the *Yucca aloifolia*, or Spanish Bayonet, as it is known locally, with the Maguey (*Agave Americana*), which reaches an even greater height, running it a close second. The former grows to the height of about twenty feet and bears at the top of its great flower-stalk a gigantic cluster of pendant creamy-yellow blossoms of delightful fragrance, called by the Mexicans "Lluvia de Oro" (Shower of Gold). Its upper leaves are stiff and erect, while the lower ones are pendant. Nothing could be more beautiful, Dr. Van Dyke says in "The Desert," than the waving lightness, the drooping gracefulness, the swaying, tossing well-called Shower of Gold. The pollination of the *Yucca* is said to be one of the most wonderful chapters in the history of pollination.

The Maguey (*Agave Americana*), commonly called the Century Plant because of their slow growth and infrequent flowering, do not reach their greatest perfection in the Rio Grande Valley, though they are very prolific and reach a height frequently of 25 or 30 feet. Prescott has made the world familiar with the value of the Agave, which he calls the "miracle of nature" to the Aztecs, and describes its "clustering pyramids of flowers towering

above their dark coronals of leaves" most beautifully. He also says: "Its bruised leaves afforded a paste from which paper was manufactured; its juice was fermented into an intoxicating beverage, pulque, of which the natives to this day are exceedingly fond; its leaves further supplied an impenetrable thatch for the more humble dwellings; thread, of which coarse stuffs were made, and strong cords were drawn from its tough and twisted fibers; pins and needles were made of its thorns at the extremity of its leaves, and the root, when properly cooked, was converted into a palatable and nutritious food. The Agave, in short, was meat, drink, clothing, and writing material for the Aztec! Surely never did Nature inclose in so

compact a form so many of the elements of human comfort and civilization."

Many pretty legends are told of the discovery of the life-giving juice of the plant, from which several intoxicating drinks are made. One of the legends ascribes its discovery to the god Izquitecatl; another to a prince of the royal blood of Toltecs. Prescott relates this pretty fable: A noble Toltec named Papantzin, found out the method of extracting the juice from the Maguey and sent some of it to his sovereign, Tepancaltzin, as a present, by his daughter, the beautiful Xochitil, the flower of Tollan. Enamoured alike of the drink and the maiden, the King retained the lovely Xochitil, a willing prisoner, and in after years placed their illegitimate child upon the throne. This was the beginning of the trouble of the Toltecs, as similar things



*Papayas.* Note the decided difference in the male and the female of the species. In Mexico the trees are cultivated for their fruit, one male to fifty females being used in a grove.

have been the beginning of trouble from time immemorial. It led to the eventual dispersion and extinction of the race, brought about by the beauty of a woman and through the means of the soul-destroying pulque. However and by whom it was discovered, suffice it to say the Mexican Indians even to this year of grace, 1923, have shown a keen and undiminished appreciation of its use.

With this very incomplete list of the beautiful growing things of the Rio Grande delta, I must, unless a volume is contemplated, stop; but I cannot do so without a casual mention of the numerous lovely exotic vines and flower-laden climbing plants that drape themselves upon walls and trellises and fling themselves even to the very tops of the trees. The dainty coral-colored Corona de la Reina (Queen's Crown) is, perhaps, the most noted and cer-

# Caciques and Oropendolas

By R. N. DAVIS

*Curator of Everhart Museum, Scranton, Pennsylvania*

**W**INTER before last, the writer had charge of an expedition to Panama for the purpose of obtaining natural history material from that region for the use of the Everhart Museum. The enterprise was financed by Col. L. A. Watres, a public-spirited citizen of Scranton, Pennsylvania. A preliminary trip to the Isthmus had been made the year before by the

writer, so that we lost no time from our work on our arrival there. Everybody, from the Governor of the Canal Zone to the humblest laborer, seemed anxious to give us every facility. As a result, we obtained a fair representation of the flora and fauna of that part of the world.

Particular attention was given to the bright-colored and



**WAGLER'S OROPENDOLA AND LAWRENCE'S CACIQUE, DISPLAYED IN THE EVERHART MUSEUM AT SCRANTON, PENNSYLVANIA**

The two shorter nests are occupied by the yellow-rumped birds known as Lawrence's Cacique. All the other nests belong to the other birds shown, which go by the name of Wagler's Oropendola. These nests are attached to the branches just as they were when on the tree a hundred feet above ground. The branches were cut off by rifle bullets.

attractive birds. One of the most remarkable groups of birds of tropical America consists of the caciques and oropendolas. These birds are related to our orioles and build similar nests. As some of the species are much larger than the orioles, their nests are correspondingly large and long. Most of them are social in their nesting habits and one may see from a half dozen to a hundred nests on some great tree. More than one species may occupy the same tree.

One day we found an enormous tree, five or six feet in diameter, at the end of one of the projections of Gatun Lake. Water entirely surrounded the tree, and in the high top of the tree were nearly a hundred nests of Wagler's oropendola and Lawrence's cacique. We studied various plans for securing some of the nests. On account of the situation and the enormous size of the tree, cutting it down seemed impracticable. Then, too, we didn't want to destroy all those nests. At last we decided we would get a long rope and a ball of twine. By throwing the ball of twine over one of the horizontal branches we thought we could pull up the rope, which we would tie to one end of the twine.

When the rope was in place one of our party would be drawn up to the branch, where he could cut off the desired limb with the nests attached.

The gunner of our party evidently thought he would be elected to do the climbing and he didn't fancy it. At any rate, before our plan was tried he went out one day with a native in his cayuca and returned with three

branches he had clipped off with rifle bullets. The dozen nests attached were ample for our purpose and are now on exhibition at the museum, as shown in the picture.

The nests of Lawrence's cacique are about two feet long, while those of Wagler's oropendola are three or four feet long. We did not get any of the nests of the crested oropendola, nor of the Montezuma oropendola. These nests are five or six feet long.

Among all the birds of this group there is quite a difference in the size of the two sexes, the male being much the larger. According to our observations, the female builds the nest and occupies it exclusively. It would not fit the male bird, and his job is to find food for the family.

The word "cacique" is of Indian origin and signifies "chief." Just why it is applied to these birds is not apparent. "Oropendola" is of Spanish origin, and the "hanging gold" probably has reference to the golden colors of the birds and the hanging nests. They are certainly among the most remarkable structures made by any birds.

A pensile nest in a thorny acacia has been quite a puzzle to the writer. Several nests were seen of the same size and appearance and always in the acacia tree. As no bird seen appeared to be the owner of these nests,

we are left to surmise that it belongs to some species of cacique. As the acacia is invariably chosen as the nesting site, it may be the bird obtains protection from the thorns. As the thorns are occupied by a species of biting ants, it is possible that these are the protectors of the birds.



#### COMMUNITY BIRD LIFE

About a hundred nests of the Caciques and Oropendolas were on this tree. Many of the nests are obscured by the foliage.



#### THE BUILDERS OF THE WONDERFUL HANGING NESTS

From left to right, these birds are Crested Oropendola, Small-billed Cacique, Wagler's Oropendola, Prevost's Cacique, and Lawrence's Cacique.



# Pines of Hearts Content

By L. L. BISHOP

**I**N Northwestern Pennsylvania—Warren County—is a forest known locally as “Hearts Content.” Comprising approximately 600 acres, “Hearts Content” constitutes the last stand of any extent of original, old growth white pine in the East. As is the rule for the region, a large percentage of the forest in which the white pine occurs is hemlock, with a lesser mixture of maple, beech, birch, basswood, and cucumber.

“Hearts Content” is one of the remnants of what was the largest contiguous soft-wood forest in the State of Pennsylvania—perhaps in the whole East. Originally an almost pure pine and hemlock forest, known as the “Black Forest of Pennsylvania,” covered several million acres of central northern Pennsylvania. Within this stand is what is believed to be the region of the best development of eastern white pine, and it is quite certain that here grow some of the finest specimens of this world-famed forest tree.

“Hearts Content,” so named many years ago by a lumberman who appreciated the forest perfection of the region, is located on the Allegheny Plateau at an elevation of approximately 1,900 feet, 900 feet above the Allegheny River and at a distance of some three miles east. That the forest occurs on some of the highest land of the region is shown by the fact that the Pennsylvania State Forestry Department has chosen as a location for a fire lookout tower, a point only a few hundred yards distant. It was necessary to build a tower twenty feet higher than the ones usually erected in order to be able to see over the “Hearts Content” timber.

## SAVING THE BEST FOR THE LAST

Warren County has long been a timber-producing section. As early as 1800 sawmilling was in progress. The material first sought was “cork” white pine. It was taken out as squared timbers and rafted down the Allegheny to

markets at Pittsburgh, Cincinnati, St. Louis, and even as far away as New Orleans. It is seemingly little less than paradoxical to say that of a forest which has for more than a century been subjected to exploitation there still remains “Hearts Content,” the finest part; yet such is the case. The explanation is that for nearly 100 years the tract has belonged to a conservative, farsighted lumber company, a company whose management long ago fore-

saw that the forests of this country were not, as they were oftentimes thought to be, inexhaustible. This management believed in saving for the last at least a bit of the best.

In order to convey an adequate idea of some of these old virgin pines, it is necessary to record the following data concerning the property of which “Hearts Content” constitutes a part: A single white pine stem has yielded ten sixteen-foot logs. Another tree has produced 6,000 board feet of sawtimber. Still another, a stick 20" x 20" x 76', square-edged and sound. The largest tree now standing measures 52 inches in diameter at breast height. A single one-quarter acre has been estimated at 50,000 board feet.

The stand of “Hearts Content,” though mature at this time, contains a goodly number of trees of younger ages. The death rate among the large trees is quite high, but what is taking place is the natural passing of the older speci-

mens, their places to be taken by representatives of the younger generations. It is probable that were this process to continue for a century the appearance of the stand would not be appreciably altered.

During the past several decades it has been the policy of the company owning the timber to salvage such white pine trees as have died. The very favorable logging conditions prevailing over the tract as a whole have made such a plan feasible and, as prices have advanced, the net returns have been more and more gratifying. Any dead



THIS REGION OFFERS A MATCHLESS OPPORTUNITY FOR THE ESTABLISHMENT OF A PUBLIC FOREST FULL OF POSSIBILITIES FOR PUBLIC USEFULNESS



THE LARGEST TREE CUT, A WHITE PINE, YIELDING 6,000 BOARD FEET—TEN 16-FOOT LOGS

or down pine material within the stand can be removed at a profit.

#### SHADOWS THAT DIM THE FUTURE

Strange as it may seem, the forest of "Hearts Content" is not widely known. To those who have visited it, its presence has created in nearly every instance a distinct surprise. The invariable question is, "What is to be its future?" If one stands in the midst of the pine and hemlock, he can hear the ring of the ax as timber on adjoining parts of the property is being felled. Even now grade stakes mark the location of the railway into "Hearts Content," which is to be built for the purpose of removing the last of this wonder forest. It is encouraging to know, however, that there is a growing realization on the part of many that "Hearts Content" offers a last opportunity for the establishment of a public forest which would preserve

a matchless sample of the glorious forest which so largely covered the region, but which has been almost entirely appropriated to the use of the present and past generations—a forest most largely endowed with possibilities as to public usefulness.

"Hearts Content" would constitute a Mecca for the tourist, a treasure-house for the ecologist and biologist, a princely domain for the naturalist, a proving ground for the lumberman, and an inspiration for the forester. Once established as a public forest, it is certain that the visitors to this bit of God's outdoors would be numbered by the tens of thousands. It would in years to come be one of the show places of the East. Who can estimate or overestimate the dividends which would accrue to the public through better health, forest enlightenment, and a growing appreciation of the handiwork of nature?



"HEARTS CONTENT" HAS MUCH TO OFFER THE RECREATIONIST, AND IT LIES WITHIN EASY REACH OF TEN MILLION PEOPLE



EVEN NOW GRADE STAKES MARK THE LOCATION OF THE RAILWAY INTO "HEARTS CONTENT"

There are many things that commend the preserving of at least a part of "Hearts Content."

#### A CAMP GROUND FOR FORTY MILLION PEOPLE

It constitutes the last area of any extent of old white pine in the East; it is located in the midst of what is becoming the Allegheny National Forest, and it could thus be surrounded by National Forest administration and protection. Within close proximity, on the main traveled road, is a State Forestry Department fire lookout tower. From such towers the doctrine of forest protection is effectively spread. All of "Hearts Content" is readily accessible to good roads. Any trees killed by lightning or otherwise can be salvaged. The tract could be so managed as to constitute a demonstration of close forest utilization. Within the wooded



IN "HEARTS CONTENT" LIES STILL A MATCHLESS SAMPLE OF PENNSYLVANIA'S GLORY OF VIRGIN WOODS, AS IT COMPRISES APPROXIMATELY 600 ACRES OF ORIGINAL GROWTH

boundaries is a beautiful spring, the water from which, even in the warmest weather, is only ten or fifteen degrees above freezing. As a camping or public recreational ground, "Hearts Content" has much to offer, as, aside from its forest growth, the region is a most picturesque

one and is within a one-day motor trip of ten millions of population and within a two day trip of forty million people.

Those interested in the project of preserving "Hearts Content" believe that white pine and hemlock have meant so much to the industrial life of the East in general and



IN THE LAND OF "HEARTS CONTENT"—A MECCA FOR THE TOURIST, A PRINCELY DOMAIN FOR THE NATURALIST, A PROVING GROUND FOR THE LUMBERMAN, AND AN INSPIRATION FOR THE FORESTER

to Pennsylvania in particular, that through some means funds will become available to the end that the last vestige of the once magnificent Black Forest shall not perish.

## Old "Tree Pipes" Found in Baltimore

BY N. C. McLoud

Wooden water pipes believed to have been underground since 1745 have recently been unearthed by workmen engaged in digging into a street in the oldest part of the city of Baltimore. The pipes were made of logs, in sections of from six to eight feet and about nine inches in diameter. Lengthwise through each section a channel about four inches in diameter had been bored. The joining of the sections was effected by the insertion of the tapering end of one log into the bore of the next and covering the joint with mortar, bound with hoops of iron.

Both mains and service pipes were found. The serv-

ice pipes leading to the houses were of smaller logs, with 1½-inch channels. To join the smaller pipe to the main, a copper spigot was used, driven through an opening in the side of the main. A similar spigot connected the service pipe with an iron house-pipe, of later installation.

The wood and copper were in perfect condition when found, and water-works officials stated that they have obviously had much longer service than marks the life of iron pipes. The Baltimore water works date back to 1807, and it is believed that the wooden pipes may have been installed in connection with a factory built in 1745.



# Blossom of the Tulip Tree Becomes Hoosier Flower

BY ELIZABETH RAINEY

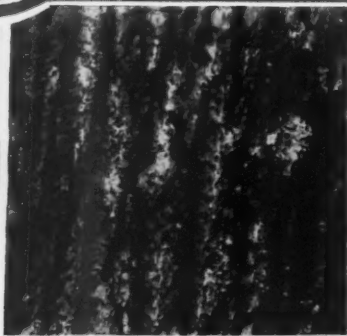
**S**HORTLY after the election last November, at which I was elected a member of the General Assembly of the State of Indiana, a letter came from Mrs. Fannie K. Baker, a member of the faculty of the Teachers' College, Indianapolis, asking me to interest myself in a bill to make the flower of the tulip tree the state flower. I knew the tree, and at the moment it seemed to me to be inappropriate for the state flower on account of its inaccessibility. I wrote Mrs. Baker that this thought came to me, but that I would give the matter further consideration and let her have my decision later. She then forwarded to me such a wealth of information concerning the tulip tree—or the yellow poplar, as it is commonly called—that I soon became convinced it was not only appropriate, but was by far the very best selection that could be made.

Some years ago Indiana adopted the carnation as her state flower, but no one has ever been satisfied with it, not because it is not a very beautiful flower, but because there is nothing distinctively Hoosier about it. It is grown in hot-houses and sold everywhere, having been developed from a little English pink. We have wanted something native to the State of Indiana. The tulip tree has grown here so long that "the memory of man runneth not to the contrary," and scientists, who, by the way, call it *Liriodendron tulipifera*, tell us that a few millions of years ago there were sixteen species of the tree, and that during the Ice Age all perished save one in Asia and our tulip tree. The tree is found throughout the middle section of the United States, but reaches its fullest development in the Wabash and White River valleys; so perhaps Indiana more than any other state can claim the tree as her own.

The tulip tree is one of the finest hardwood trees in the world, if judged by size, form, foliage, and the wide range of uses for which its wood is employed. In girth it is exceeded only by the largest sycamores, but it overtops in height all its competitors among American hardwoods, and in grace of form and yield of excellent lumber it has no equal.

Mr. Deam, in his "Trees of Indiana," says: "The tulip transplants easily, grows rapidly, is tall, with short side branches, and is one of the very best trees for reinforcing the woodlot and for other forest planting."

While the tree is known as yellow poplar, it has no kinship with the poplars, but is of the magnolia family, in which it takes high rank because of the rare beauty of its tulip-like flowers, of





whose "golden green and red and white" it has been said, "Our country's flag is scarce more bright."

After my conversion to the idea, I became exceedingly enthusiastic and went about working for the passage of the bill with determination. The fact that many of our forty-eight farmer members had never seen the tree was evidence of the great necessity of doing something to arouse their interest in a tree of such splendid worth, that has been cut away almost to extinction in some localities.

I found many members with the same idea that I at first had, that our state flower should be more accessible, so the children could gather and enjoy them. But why, I argued, must the children gather and handle the flowers to enjoy them? The suggestion reminds one of the thoughtless automobile parties who go out day after day and gather great loads of redbud, dogwood, wild cherry, and often do not spare blossoms of the fruit trees, which are all wilted by the time they reach home. So, I argued, it would be with the state flower. To gather it and let it wither and be trampled under foot would cheapen it. Let us have an aristocratic, queenly sort of flower, and treat it with reverence.

Before the committee I was ably assisted by Mrs. Baker, Miss Lucy Elliott, of the Indiana Historical Commission; Mr. S. E. Perkins, and other members of the Nature Study Club, with the result that there was a unanimous report for passage of the bill, which passed both houses, was signed by the Governor, and now the tulip is the state flower of Indiana. Its reception has been a revelation. The press all over the state has extolled it, article after article has been written, and many poems written long ago have been discovered and reprinted. Mrs. Baker has given one thousand tulip trees, which have been distributed through the Nature Study Club of Indianapolis, two having been sent to each member of the State Legislature. The State Forestry Department and the nurseries are being deluged with orders for them, and it is hoped that in the course of four or five years every man, woman, and child will be familiar with the state flower.

## Mortality of Trees

Trees are less fortunate than human beings up to certain ages, according to mortality tables, although some species of trees reach a great age. The sequoia may be 4,000 years of age. A forest at maturity contains about 5 per cent of all the trees that have started life there. The percentage of persons living from ten to fifty years is far greater than in the case of trees. About 95 per cent of trees die before they are eighty years of age compared to 87 per cent of persons.

In some natural pine forests, where the trees grow very close together, statistics show that more than 4,000 trees per acre die between the ages of ten and eighty. With pine, birch, aspen, and all species that demand a great deal of light, the death rate is very heavy.

## The A. B. C. of Forestry

Sir William Geary, in his park at Ozone Heath, Hadlow, England, has planted an avenue of trees nearly half a mile long. The unusual thing about this long row is that each tree is different, and that all the letters of the alphabet are represented in the lot. The alphabet of trees is composed of the following saplings: aspen, beech, catalpa, dimorphanthus, elm, fraxinus, gum, hornbeam, idesia, juglans, koelreutia, larch, maple, negundo, oak, poplar, quince, rowan, sycamore, tulip tree, umbrella pine, viburnum, willow, xanthoceras, yellow tree, zelcova.



## Oysters Growing on Trees

BY S. J. RECORD

Here is pictorial evidence that the old joke about oysters growing on trees is not so absurd as it sounds. The photograph shows a fringe of a mangrove tree extending out from the shore on its stilt-like roots. It is a common thing for oysters to attach themselves to these appendages, and when the tide is low clusters of them are seen hanging above the water, as shown here. This picture was taken in southern Florida.



## EDITORIAL



FORESTS ARE THE MEASURE OF A NATION'S VIGOR

### A Tiny Host a Mighty Enemy

THAT the little harmless-looking currant bush can put to flight a whole army of pine trees does not sound reasonable.

Nevertheless it can, and, what is more, it is doing it. The story of the conflict between the currant and the pine is told by Mr. Detwiler in "Spare the Currant and Spoil the Pine," which appears on page 337 of this issue of *AMERICAN FORESTRY*.

There is more than reading interest in this story of the insidious warfare of bush against pine. One of our most important timber trees is at stake, the all-beneficent white pine—a tree which will ever loom high in the forest history of America. White pine forests, sacrificing almost their last virgin growth in the service, literally built the pathway of the nation's progress from the Atlantic westward through the Middle West and across the Great Plains. Today a second generation of white pine, starting on the same Atlantic coast, is writing a new chapter in our national history—America's awakening to the value of newly grown forests.

Young pine in New England is valuable. It is coming to be recognized as one of the most valuable products of

the soil. Conservative New England farmers are admitting it. The same is true of bankers, many of whom, before loaning money on New England farms, are requiring that the pine woodlands be adequately protected. Agricultural colleges are at last awakening to the value of growing pine as a farm crop, and government agencies are bestirring themselves to meet the awakened demand for information on timber culture and forest protection.

There is nothing magical or fanciful about this. Trees grow. Bind them with bands of iron and they continue to grow. They are wood to the core, and wood is dear. It is becoming more so year by year, as the long reach for lumber stretches ever further westward. New England fields which a decade or so ago were looked upon as merely pine brush, worth little or nothing, are today young forests, yielding crops bringing \$500 to \$1,000 an acre.

New England needs these forests. The nation needs the lesson which New England white pine is teaching. The blister rust must not be allowed to spoil the page. The little currant is a mighty enemy. Its extermination in the vicinity of pine lands must go forward vigorously and without abatement.

### A Mine or a Crop?

TIMBER mining, we are told by the United States Forest Service, is responsible for our present forest predicament. In a publication just issued, entitled "Timber: Mine or Crop," which appears as part of the new Department of Agriculture year book, the story of America's timber mining is told in all its significant details. This report is an outstanding contribution to the cause of forest education.

It asks the American people whether timber shall be henceforth considered a mine or a crop, and is based in part upon data and information compiled for the Capper report, but it is much more exhaustive, embracing a great amount of new information bearing upon our forest improvidence, its causes, and its effects. It traces our forest exploitation from the early years of the nation and presents a clear and impressive picture of our present forest emergency. It points out, with much substantiating data, the effects of our national timber mining policy, and offers definite suggestions as to what should be done to bridge the gap from the worked-out timber mines of the past to the incoming timber crops of the future.

Three outstanding measures, it says, are necessary to bring about the growing of timber crops on forest lands.

The first is to stop unrestrained forest exploitation, which has left 81 million acres of forest land largely barren, 250 million acres more only partially productive, and is adding 5 to 10 million acres each year. The second is to reduce waste in the use of timber. The third important step is to increase timber production, to the full capacity of the land, by more extensive planting, better fire protection, and less reckless cutting.

"By recognizing the importance and urgency of two great national problems, land use and timber supply," the report concludes, . . . "we can grow on our forest lands timber crops sufficient to meet our wood requirements, if public agencies and private owners each do their share. The alternative is idle forest land and timber bankruptcy."

While longer than necessary, the report is nevertheless a mine of information and it will serve a long-felt want for a comprehensive, up-to-the-minute handbook on the needs and progress of the forest movement in America. More than that, it lays the whole case clearly and exhaustively before the American people. It is up to them to decide whether the American forest shall be managed as a mine or a crop.

## Minnesota Increases Its Fire Budget

MINNESOTA is majoring in forest fire protection. Almost 80 per cent of the money appropriated for forest work during the new year will be spent to stamp out fire from the North woods. The state legislature, meeting during the winter and spring, has recognized that Minnesota has a real fire problem. It has increased the state appropriation for forest fire protection by \$45,000, which, although a small increase compared to the magnitude of the fire problem, will aid materially in providing better fire protection in the North country.

Last year over 250,000 acres in northern Minnesota were burned over. It is safe to say that these acres will not attract this summer, or for a good many summers to come, many tourists. Neither will they grow much timber. Fires which literally eat up 250,000 acres a year, frightening tourists from the country, destroying millions of dollars in property, and crippling the growing power of the soil are indeed a menace worthy of the maintenance of a fire organization fully equipped to meet the emergency.

The legislature took another constructive step in passing a bill proposing an amendment to the state constitution which will provide for a yield tax on timber. This measure will be voted on at the next general election, and, if approved by the people, it will open the door to the development of constructive timber taxation in the state. The legislature, however, did not pass the State Forest Bill, which would have added additional state lands to the state forests. The bill was opposed by some of the larger counties in the northern part of the state. It is unfortunate for the state as a whole that this measure did not pass. Minnesota now owns some 600,000 acres of unreserved timber, which it is disposing of at the rate of some 40,000 acres a year, on the theory that the raw land is needed for agriculture. Meanwhile available cut-over land in the state is now fifty to one hundred years ahead of agricultural development. When the state's timber is gone and the people are holding an overburdening sack of barren and brush land, everybody will be sorry and will wish that a different policy had been followed.

## A Worthy Proposal

A FEW days ago a man called upon the editor and spoke as follows: "Alfred Nobel bequeathed a fortune to reward outstanding contributions to human knowledge. Andrew Carnegie established a fund of five million dollars to reward heroic and unselfish service in saving human life. The City of Philadelphia has created a fund to reward yearly the citizen who renders the greatest service to his city during the year. Why not an endowment for forest-fire prevention?"

Why not? Certainly, the cause is worthy of the act. Nothing stimulates human endeavor like reward, and certainly the annual destruction of forests by fire every year calls for stimulated effort. That the idea is practical as applied to forest-fire prevention has already been demonstrated, in a very small way, to be sure. Some fire-protective organizations, states, and lumber companies have followed the practice either of giving prizes or writing special letters of appreciation at the close of every fire season to individuals or agencies who during the season have rendered conspicuous service in forest-fire prevention, detection, and suppression. This recognition, though small, has done a surprising amount of good in stimulating a wide-awake sentiment against fire.

With an industry as great and diversified as the lumber industry and with a heritage as vital as our forests, the raising of an endowment fund to carry on our forests from one decade to another and from one generation to the next ought not to be difficult. A fund of \$100,000 would be sufficient for a beginning. There are more than fifty industries in the United States dependent in whole upon our forests; there are many dependent in part.

There are six million hunters, to whom the woods represent the best of the out-of-doors. There are six times that number of people who go to the woods annually for recreation. There are a hundred and ten million people who use and need the forests and their products every day. There are an infinite number of newspapers, trade periodicals, popular magazines, which subsist by virtue of the forests.

To all these interests, \$100,000 is an item of small moment. They are spending that amount and more every five minutes of the day. But that sum, properly handled, to reward distinguished service in protecting our forests would be a mighty force. It would be an ever-growing public education, obtained at a ridiculously low cost.

Such an endowment fund would provide a sum of six or seven thousand dollars annually to be distributed in the form of prizes or other awards to individuals, Boy Scout units, schools, fire-protective organizations, sportsmen's clubs, towns, etc., which have rendered outstanding service in saving our forested out-of-doors from the red devastation of the woods. These awards, handled regionally, would serve to stimulate public interest in forest protection in every section in the United States. In the course of a few years they would endow our citizens, old and young, with an appreciation of trees and forests so deep and lasting that the cry "Forest Fire!" would be the country's call to arms.

Who will be the first to pledge a substantial sum toward such a fund? AMERICAN FORESTRY wants to publish the name far and wide.

# Loblolly Pine on the "Eastern Shore"

By J. A. COPE

**A** TRAIN ride through the level stretches of alternate sandy fields and pine forests of the Atlantic Coastal Plain seldom creates a desire in the average person for a closer acquaintanceship with the region. Yet these sandy soils are admirably suited for the production of truck crops and they contribute no small portion to the agricultural wealth of the Coastal Plain states.

The ever-present pine, too, is more and more taking a prominent position in the economic development of the region. On Long Island and in New Jersey it is the pitch pine; from the Delaware Peninsula southward it is chiefly the loblolly pine, and in South Carolina and Florida it is the slash pine. They all belong to the group of hard or yellow pines, but are readily distinguished by differences in needle, bark, and cones, as well as by their geographic distribution. As is to be expected, the longer growing season of the Carolinas and Florida brings about greater yields of loblolly and slash than is found to the north in the pitch pine. Difference in the species, as well as soil moisture, also influences the variance in the rate of growth. On the other hand, while growth is slower at the north, the markets for every kind of forest product are better, not only because they are relatively close at

hand, but also because the transportation facilities for getting the forest products to the markets are adequate and complete.

Given a rapidly growing native species and an accessible market that will permit of close utilization and we have the basis for an intensive practice of forestry. Along the 1,100-mile stretch of Coastal Plain there is one section where these two factors are most happily combined. This is the lower portion of the Delaware Peninsula, comprising roughly one county in Delaware, five in Maryland, and two in Virginia. The North has the markets and railroads, the South has the fast-growing species, but the "Eastern Shore," as that portion of Maryland and Virginia is called, has them both.

These eight counties, containing approximately 4,000 square miles, mark the northern limit of the commercial range of the loblolly pine. It seems quite as much at home here as in the Carolinas—a little less tall, a little less diameter growth in a half century, but still quite able to qualify as a fast-growing tree.

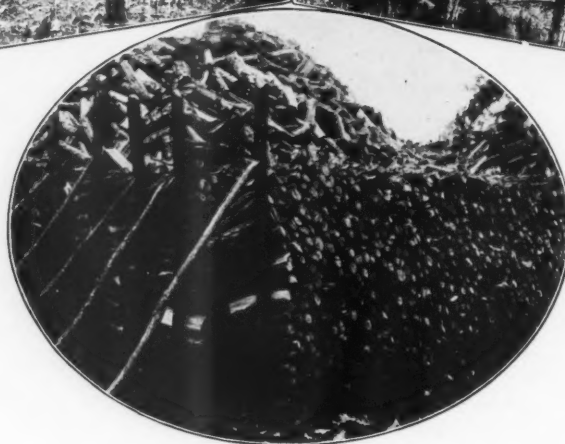
We are so used to hearing about the wonderful growth made by the white pine on the rocky slopes of New England that we are inclined to put it in a class by itself.



A 14-YEAR-OLD PINE FOREST CONTAINING 26 CORDS OF WOOD TO THE ACRE AND READY FOR THINNING



AFTER THINNING AND THE PRODUCT, 11 CORDS TO THE ACRE, STACKED FOR MARKETING

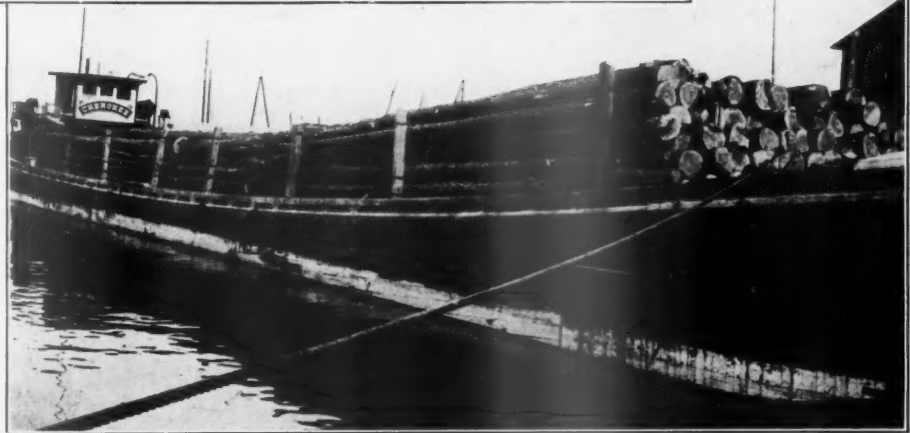






#### THE STORY WRITTEN BY GROWTH RINGS

This pine was crowded and held back by too many neighbors. When they were thinned out, five years ago, its increased growth, as shown by the wide rings on its outer circumference, is conclusive evidence of the forester's art.



#### DOES A PINE CROP PAY?

This old barge seems to answer the question, for its load of loblolly piling, from the Eastern Shore of Maryland, is worth \$10,000.

As a matter of fact, volume for volume, over a period of years, the loblolly is a worthy rival of the white pine.

#### CORN ROWS IN THE FOREST

The other common name for loblolly pine is old field pine, which gives some idea of the past history of the many splendid thickets one sees all over the Eastern Shore. The winged seeds seem to strike root almost the minute they alight on the exposed mineral soil of an abandoned field. Many a farmer has allowed a field along the edge of the woods to lie fallow for a year or so, and when he returns to plow he finds a carpet of pine seedlings from 3 inches to 6 inches in height and extending out into the field a hundred yards or more. Under favorable conditions of soil and abundant moisture, it is not uncommon for seedlings to grow 8 inches to 10 inches the first year. The seeds do not object to sod either as a

place to start life, just as long as there is sufficient moisture to induce germination and the mineral soil is at hand for the little rootlets to plunge into at once. The young loblolly asks no favors.

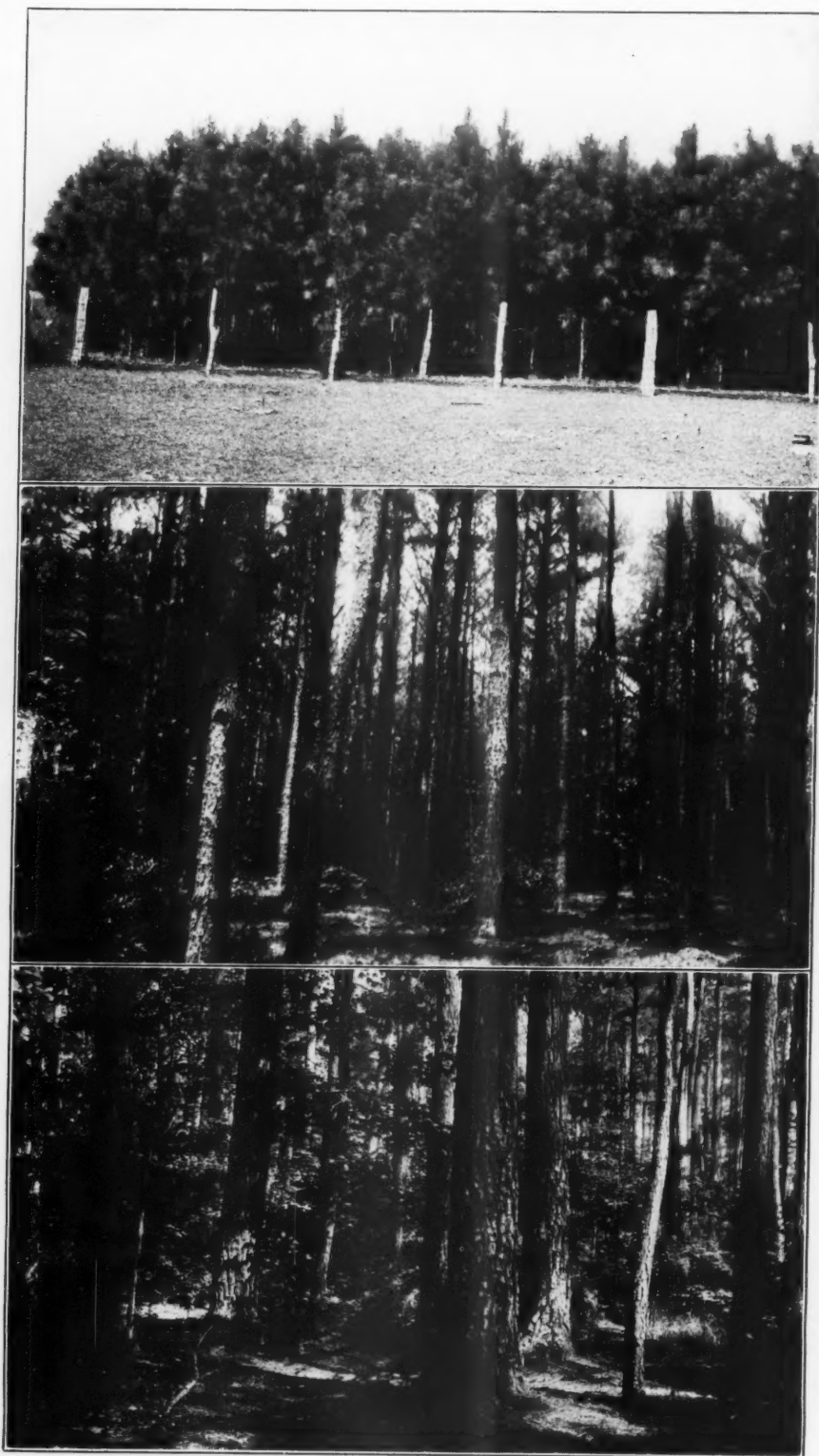
On the dense layer of needles that cover the forest floor the little seeds have not a chance in the world; they lie there until a particularly wet spell induces germination and, no soil being at hand, the seedling withers and dies. An interesting example of how the seeds lie dormant in the pine needles was noted in Talbot County, Maryland. A farmer covered his strawberry bed with a load of pine needles late in the fall, and the following spring raked the needles back to uncover the strawberry plants. Later in the summer he was much surprised to note little pine seedlings covering the whole strawberry

bed. That was six years ago. And now the fine little clump of pine shown in the illustration stands in the middle of his field.

So, as you ride along in the train and see these dense stands of pine, all the trees in one stand being so nearly of the same size and height, it is a safe guess that the stand started in an old field. In fact, in many 50- and 60-year-old stands the corn rows are still plainly visible, mute reminders of the fact that after the Civil War there was no slave labor to cultivate the great plantations.

#### SURVIVAL OF THE FIT

No sooner are the little seedlings established than a fight is on for life. Nature does not believe in race suicide, and it is not uncommon to find as high as 10,000 young pine seedlings on one acre. Forty years hence—this acre could not possibly support more than 400 full-grown loblolly



## TYPICAL WOODLANDS

*Upper*—A six-year-old pine forest which grew out of a strawberry bed when the farmer mulched it with pine needles.

*Middle*—A 45-year-old stand ready for harvesting, 30,000 feet to the acre.

*Lower*—Veterans of 80 years are today a rare sight in Maryland's pine country.

pine trees, so in those intervening decades one can realize what a slaughter must occur. At first thought this seems unnecessary wastefulness on the part of Nature, but in the case of loblolly pine, at least, a very useful purpose is served. The trees are forced to seek their light overhead; the side branches die and fall off, and the trees attain a clean-limbed appearance at an early age.

Nature will bring about the survival of the mature crop unaided, but where some profitable use can be made of the trees that otherwise would die and go to waste, it is a mighty good plan to help Nature out. The trees shown in the thinned stand on page 368 are in a fourteen-year-old stand of pine that had been reduced through competition to 1,800 trees to the acre. Since there was an active demand in the neighborhood for pine stove-wood, it was thought that a thinning could profitably be made in this fast-growing thicket. So Nature was helped to the extent of removing 800 trees to the acre, leaving behind in 15 cords of wood 1,000 of the well-developed saplings. The wood from the 800 trees when stacked, after cutting and splitting with a special machine, amounted to 11 cords and was sold at a net profit of \$1.00 a cord, or \$11.00 an acre, and, in addition, the stand was improved. In another five years Nature can be helped by another thinning.

## THE PROOF OF THE PUDDING

But, after all, it is on the final crop, at the end of a given period of years, that any species' claim for consideration as a fast-growing timber tree must rest. Rather than submit any figures of careful measurements made on growing stands, I am citing the signed statement of a reputable lumberman who kept a

careful record of the actual lumber sawed from a tract in Somerset County. He obtained a total of 490,100 board feet of square-edged lumber from an area which a careful compass-and-chain survey showed to contain 12½ acres, or approximately 39,000 feet to the acre.

A ring count of many fresh-cut stumps showed the age of the trees to be 47 years. At the time of cutting the prevailing stumpage price was \$7.50 a thousand feet, which made this little tract worth \$292.50 an acre. There were also 125 cords of slabwood and 140 cords of lops



#### ABANDONED FARM LAND RECLAIMED

This picture shows how loblolly pine takes possession of abandoned farms and gives the land a worthy job.

and tops obtained from the area, which easily ran the value up to \$300.00 an acre. This is equal to an annual return of \$6.00 an acre. If a value of \$15.00 an acre is placed on the land and interest and taxes are computed for 47 years, a net profit of \$175.73 is shown.

Of course, this is better than the average growth for the peninsula. On the sandy soils of the higher elevations the yield is less. But well-stocked stands averaging 20,000 board feet to the acre at 50 years can be found in many parts of the peninsula.

#### OTHER USES THAN LUMBER

Within a four-mile radius of the railroad, piling is the most profitable use for the straight trees. Loaded on the cars, piling is worth from 10 to 20 cents a running foot. The 70-foot sticks pictured were worth 20 cents a running foot, or \$14.00 apiece, and the barge-load of 700 sticks has a value pretty close to \$10,000. The trees too crooked for piling can be disposed of as mine props, or, sawn up into short bolts, they are readily usable for making nail kegs or potato barrels. For sections more remote from the railroad, water shipment can be made use of for such products as split cordwood for the Baltimore and Washington markets, or pulpwood for Pennsylvania paper mills.

As veneered stock, the loblolly makes an excellent substitute for red gum, used so extensively in the manufacture of peach and tomato baskets, and it has an advantage

over gum, in that it does not have to be steamed before veneering.

Not only may excellent yields be obtained in a half century or under, but provision for another crop right on the same land may be made by leaving scattered seed trees, followed by a disturbing of the surface of the ground so that the mineral soil is exposed. Four or five trees to the acre will do the trick, and there is no need to worry about windfall.

If the mature stand can be cut in strips, there will be no need for seed trees, the whole bordering stand serving in that capacity. In cases where it is desired to establish a forest on waste land where no seed trees are at hand, it is a simple matter to set out young loblolly pines, and the growth made is quite up to the natural stands.

One of the plantations is only seven years old, and yet the average height is twenty feet. The most significant fact about this plantation is the source of the stock. It did not come from a nursery and it had not been carefully transplanted to develop a vigorous root system. A farmer simply went out along the edge of the woods and lifted



#### PINE TO PAPER

Another product from the pine lot—peeled pulp wood—which finds a ready market on the Eastern Shore.

little seedlings from 9 inches to 15 inches high and set them out in the field he desired to plant up.

The "Eastern Shore" affords an excellent opportunity for an ideal combination of farming and forestry. On the better soils one may grow, and feast, too, on sweet potatoes, cantaloupe, strawberries, and tomatoes, while on the poorer soils the loblolly pine is growing the material for the containers to ship these products to a clamoring market. Not only does it provide containers for these agricultural products, but for the wealth of sea food drawn from the near-by Chesapeake as well.

# Why the Flowers Wear Petal Dresses

BY DOROTHY ARNO BALDWIN

"SOMETHING must be done or the Flower People will die!"

It was the Rose who spoke. All the Flower People were gathered around her, looking very sad. You never, *never*, would have guessed who they were, for not one of them had a petal dress and, what is more, they never had had any! Even the Rose wasn't much more than a stem and a few leaves, and at the top of the stem a clump of stamens to hold her pollen, and a pistil with tiny rooms inside in which to make seeds.

There was a long silence after the Rose had spoken, and just as it began to seem as if nobody would ever speak again, Mother Nature happened along. She had a way of appearing at just the right time.

"Good morning, little Flower People," she said, gaily. Then she stopped short.

"Dear me! What *can* make you all so sad this fine summer morning?"

"We have enough to make us sad," said the Rose, "for scarcely one of the seeds we made last year sprouted this spring. The few that did sprout were so weak that the new plants aren't growing well at all. If things keep on in this way, there won't be any Flower People pretty soon."

"What can be the matter?" said Mother Nature. "Haven't you all had plenty of nice fresh pollen, and hasn't it been placed so it will fall in just the right spot to reach down into the seed chambers and help make your seeds?"

"Yes, we've always had plenty of pollen, and it always falls in the right place, but lately a good deal has been lazy and doesn't reach down far enough to find the seed-room. Maybe that's where the trouble is."

"Let's see now!" said Mother Nature, briskly, to the Rose. "Just shake a little pollen down onto your stigma. Why, you haven't any pollen left!"

"I've used it all up," said the Rose, "and not a single grain has gone to work. My sister still has a little, though. Perhaps she'll lend me some."

"I'm sure she will," said Mother Nature, and taking a few grains of pollen from the stamens of the sister Rose, she sprinkled it on the stigma of the other.

"There! That's good pollen, and I don't see any reason why it shouldn't make seeds for you. Now you just sit quiet here for a while and see if anything happens while I set the winds to work."

While Mother Nature was calling the winds and giving them her orders for the day, the little Flower People made a ring around the Rose and waited to see if anything would happen. They could scarcely breathe, they were so excited. The Rose was excited, too, but pretty soon she began to smile, oh, ever so faintly! Then her smile grew a little brighter and a little brighter, and she said:

"I think"—then she stopped.

"Oh, *what?*" cried the Flower People all together. "Is the pollen beginning to work for you?"

"Yes! Yes! It is!" cried the Rose. "It's stretching out tiny fingers and reaching down, down toward my seed-room! It has found the door! Now it's pushing its way in!"

"Oh, Mother Nature! Mother Nature! The pollen has begun to work for me!"

Mother Nature sent the winds scurrying and hurried back to her little Flower People, who were all on tiptoe with excitement.

"Splendid!" said Mother Nature. Then she wrinkled her forehead and thought hard.

"Yes, it must be," she said, after a moment. "That has been the trouble with all of you, I'm sure. You all need pollen from each other. If your own pollen won't work for you, somebody else's pollen will."

Then Mother Nature wrinkled her forehead again.

"How am I *ever* going to find time to carry pollen back and forth for all of you? I simply can't do it. Why, there are millions of you everywhere!"

"Couldn't the Bees and the Butterflies and maybe the Humming-birds and some of the little Creeping Things help?" suggested the Rose. "There are millions of them, too."

"That's so," said Mother Nature. "They shall help. But you're all such tiny little things that they'll never be able to see you. I'll have to make some bright-colored dresses for you, so they will know where to find you."

Mother Nature hurried to her store-room, and came back with her arms full of petal cloth, softer than silk. Some of it was red and some was blue, some was yellow and some was purple, and there were pink, and orange, and all sorts of other shades besides. With her scissors, Mother Nature cut out millions of petal dresses and fitted them to the flowers. Then she embroidered them with lines and dots of other colors that would show the Insect People where they must go to find the pollen, and where they were to leave it in each flower.

When the Flower People were all dressed, Mother Nature took the honey jar out of her pantry and put a drop of sweet-smelling honey in the center of almost every flower.

"That's to be a reward for the Insect People," said Mother Nature. "They like sweet things."

No sooner was the last drop of honey placed in the last blossom than there was a tremendous buzzing, and the air was filled with Bees and Butterflies and Humming-birds, and quantities of little Creeping Things came crawling from every direction to see what all these bright, sweet-scented things were.

Such excitement as there was! Each one of the Flying and Creeping Things chose the flower he liked best or thought the prettiest, and when they found that delicious honey hidden away inside, they worked with a will, carrying pollen from flower to flower. The next spring a whole army of seeds sprouted and grew into fine, strong plants, and ever since then the Flower People have worn gay petal dresses, so that the Flying and Creeping Things won't forget to visit them.



# General C. C. Andrews

1829 - 1922

**I**N addition to the deaths this year of Dr. J. T. Rothrock, of Pennsylvania, and B. E. Fernow, of Toronto, Canada, another pioneer of forestry in America has passed away. General C. C. Andrews, of St. Paul, Minnesota, died on September 21, 1922, at the age of 93. Not widely known outside of Minnesota, the debt which forestry owes to him is not fully appreciated.

General Andrews, a New Hampshire Yankee by birth, first came in contact with forestry when he was appointed United States Minister to Norway and Sweden, in 1869-'77. His report on forestry of Sweden, furnished to the United States Department of State in 1872, is one of the earliest forestry documents published in America. From that time on, General Andrews became a missionary, preaching the doctrine of forestry in a State wholly devoted to forest exploitation—"the voice of one crying in the wilderness"!

In 1894 came the first of the awful holocausts with which Minnesota has been afflicted—the Hinckley fire. Out of that tornado of destruction sprang the first forestry law of Minnesota, with General Andrews as the chief fire warden. This position he held for seventeen years of unremitting effort. His annual reports constantly set forth the merits of forestry as opposed to needless destruction of Minnesota's forest wealth. From the *Pioneer Press* of August 6, 1907, we quote:

"For the twelfth time, Minnesota's prophet of forestry, General C. C. Andrews, presents to the Government and people of the state his annual report. For nearly thirteen years General Andrews has given to the forestry interests of the state the most painstaking and conscientious study; to the protection of its forests against fire, in his capacity as chief fire warden, the most vigilant and watchful care. . . .

"But his service as fire warden, important as it has been, has not paralleled in magnitude that which he has sought to render in the capacity of a public teacher of the principles of forestry. By the conditions of the act creating his office, it was made a part of his duty to 'disseminate information concerning forestry.' That part of his commission he has interpreted in the terms of the enthusiast—more and more so as the mistakes and wastefulness of the state's policy toward its lumbering interests became clear to him and he perceived the necessity of providing—in Minnesota, the traditional 'home of the pine' and the storehouse of a forest wealth once deemed 'inexhaustible'—against a treeless future. He has been indefatigable in traveling over the state as the herald and exponent of rational forestry. In lectures before schools, colleges, and societies; in frequent

contributions to the newspapers; in conversation with individuals and in labors before legislative committees, he has presented such an array of facts and figures as should, as the result of his work, have made Minnesota foremost among all the states in its provisions for maintaining its forests and averting an impending lumber famine. His annual reports have been masterly in their presentation of the forest situation here as compared with that in Europe and in other states of our Union,



GEN. C. C. ANDREWS

The "Grand Old Man" of forestry in Minnesota.

and in their arguments, verbal and pictorial, for the substitution in Minnesota of a wealth-producing for a wealth-destroying system."

When, in 1911, his labors bore fruit and a modern fire system was established under a trained executive, General Andrews was given the position of Secretary of the State Forestry Board, which he held until his death, last year.

Upon the rock of his devotion to forestry was built the State Forest Service and the strong public sentiment for forestry in Minnesota.

## The Blazed Trail of Forest Depletion

[Continued from page 328]

### STATE SHOULD BUY LAND FOR FOREST USE

The hillsides about Norwich today are bare. No trees of merchantable size remain, and in many places the young growth is sparse and weak. The utilization at Norwich was probably more complete than that of any other large lumbering operation in America. To use what is cut up to the last fragment is good business, but it is not enough. No provisions were made for forest renewal. Practically no old growth and only a thin sprinkling of inferior young growth is now present on the cut-over areas. The land is lying idle, although if it were given proper protection and care it is capable of producing crop after crop of valuable timber.

The best way to make this land produce wood is for the state to buy it. If handled properly, the 30,000 acres will produce annually 30,000 cords of wood or their equivalent. This amount of wood is sufficient to maintain a sawmill with dependent wood-using plants. It is easy now to see how much better and wiser it would have been if a mill with a daily capacity of 50,000 board feet had been erected at Norwich in place of the big mill, with a daily capacity of 300,000 board feet.

When operations started, in 1910, it would have been possible to work out a permanent cutting plan whereby 13,000,000 board feet of lumber and 12,500 cords of wood could be cut annually. This would have insured a permanent supply of raw material not only for the sawmill, but also for the stove mill, the pulp mill, the acid plant, and the kindling-wood establishment. Had this been

done, Norwich would be a busy and prosperous place today instead of an abandoned lumbering town in which poverty has come to stay.

### HUMAN LIFE DEPENDENT UPON FORESTS

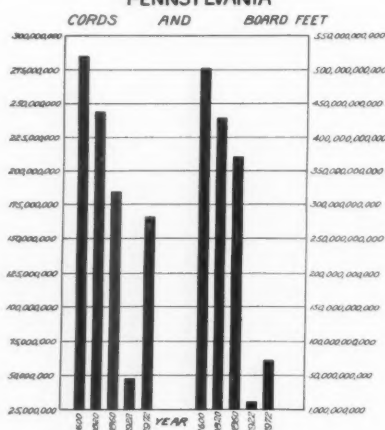
The American lumberman has reaped, but he has not sown. Slowly but surely we are

the history of nations. We use raw wood in more than 1,500 ways, and we use more of it per capita than any other great nation. We must not overlook the fact that our forests have helped us to develop from a starving and struggling band of colonists to the richest and most advanced nation on the face of the earth. Wood we must have, but in order to have wood when we need it our idle forest land must be made and kept productive.

In the United States there are invested today \$3,000,000,000 in manufacturing plants where the raw material is wood. One-eighth of the total population of the country—14,000,000 people—are dependent upon wood-working industries for their livelihood. In view of this bare fact, it is a serious matter to see our sawmills closing down, our lumber towns disappearing, and our hillsides and mountain tops lying bare, impoverished, and idle.

If any one doubts that trees have a profound influence on civilization, let him look at China. She offers an excellent example of what deforestation means. Nations made treeless by the hands of man are decadent nations. Under such conditions people have to spend so much time keeping alive that they cannot think much about making progress. Our problem is to avoid going the way of China. Our ancestors lived in a world of trees, we live amid acres of desolation. The hour for action is not ahead. It is here. The people of today must provide for the forests of the future. We cannot grow a crop of trees in a day or a year, or even in a generation.

### WOOD IN FORESTS OF PENNSYLVANIA



awakening as a people to the deadly errors of the past. Human life all over the world is absolutely dependent upon the forests. Without wood we could have no manufacturing, no agriculture, no commerce, and civilization, as we know it, would come to an end.

Our appetite for wood is unparalleled in

## Advertising Shortens the Road to Success

Do you doubt that a new hatter could spring up in New York and, with honest hats and brilliant advertising, in five years take its place abreast of the leaders of fifty years? It has been done.

Do you doubt that a new thought could arise in pencils, and, in two years, backed by good advertising, make a place for the pencil on the desks of the nation? That, too, has been done.

Do you doubt that a New York department

store, in a bad year, could, largely through the improvement in its advertising, attract 110,000 new customers to its shop? That was done, last year.

A fine old business may consider advertising as a protection for today and insurance for tomorrow, but to the young growing business it is a pair of seven league boots, which bring fame, friends, and volume, years before their normal advent.



A detailed analysis of the circulation of AMERICAN FORESTRY will be ready for distribution to advertisers the middle of June.

Send for your copy now.

### THE AMERICAN FORESTRY ASSOCIATION

Eastern Advertising Representatives  
**CONSTANTINE AND JACKSON**  
 7 West 16th Street, New York City, N. Y.

Washington, D. C.

Western Advertising Representative  
**A. T. SEARS**  
 Peoples Gas Building, Chicago, Ill.

## President Harding Reassures Forest Committee

[Continued from page 329]

been much reduced. The amount has been \$450,000 for this year and the same for last year, which does not permit the government to compete in the market.

"With ever-increasing pressure on the forest supplies of the country, the valleys in the eastern mountains are completely cut out. The timber remaining on the high slopes is important not only in preserving the navigability of streams, but also the water powers and timber supply. It requires different treatment than that given by ordinary lumbering and must be taken in hand promptly if saved from further denudation.

"Fire follows almost invariably in the slash left by lumbermen and injures profoundly the character of forest growth that follows. Mountain soils are inflammable.

"Prices are constantly rising. The National Forest Reservation Commission is now paying for cut-over land sums which twenty years ago would have acquired the land and the uncut timber.

"We believe that these lands in the eastern mountains, as delimited by the Forest Reservation Commission, must come eventually into public ownership, and that the work already well underway should be brought to a reasonable conclusion. We recommend, therefore, to your consideration a restoration of the sum formerly appropriated, namely, \$2,000,000 annually."

The organizations represented by the delegation which conferred with the President were:

American Newspaper Association, Elbert H. Baker, Cleveland, Ohio.

National Forestry Program Committee, R. S. Kellogg, New York City.

Chamber of Commerce of New Haven, Connecticut, Charles W. Whittlesey.

International Paper Company, New York, Julian E. Rothery, Forest Engineer.

North Carolina Geological and Economic Survey, Joseph Hyde Pratt, Director, Chapel Hill, North Carolina.

Merchants' Association of New York, F. B. De Berard.

American Paper and Pulp Association, Milton E. Marcuse, Richmond, Virginia, and D. A. Smith.

United States Pulp Producers' Association, New York, Thomas W. Ross.

Springfield Chamber of Commerce, Massachusetts, Benjamin A. Hapgood, Secretary.

Western Pennsylvania Branch of the Pennsylvania Forestry Association, Pittsburgh Flood Commission, Allegheny Highway Association, Pennsylvania Board of Game Commissioners, Pennsylvania Wild Life League, J. R. Swift, Franklin, Pennsylvania.

George W. Wheelwright Paper Company, Ellerton J. Brehaut, Boston, Massachusetts.

American Forestry Association, Henry S. Graves, President, New Haven, Connecticut.

Connecticut Lumber Dealers' Association, J. G. Venter, New Haven, Connecticut.

Champion Fibre Company, Reuben B. Robertson, Canton, North Carolina.

Society for Protection of New Hampshire Forests, New Hampshire Association of Public Utilities, Connecticut Valley Waterways Association, The Connecticut River Company of Windsor Locks, Connecticut, Springfield Navigation Company of Spring-

field, Massachusetts, Allen Hollis, Concord, New Hampshire.

National Association of Wood Using Industries, National Association of Wood Turners, William A. Babbitt, South Bend, Indiana.

Connecticut Forestry Association, Henry S. Graves, Vice-President.

Society for Protection of New Hampshire Forests, Philip W. Ayres, Forester, Boston, Massachusetts.

Lee Lamar Robinson, Louisville, Kentucky.



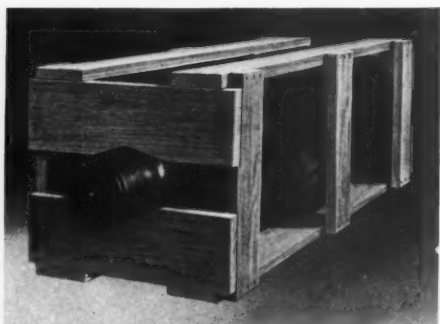
*Looping the Loop—on Berthoud Pass*

## in COLORADO

When you take this trip to the Continental Divide—the crest of the continent—you travel in safety and comfort on a modern highway, over the trail blazed by the gold-seekers on their way to Leadville. There are hundreds of historical and scenic beauty spots like this in the National Parks and Forests of Colorado. Plan to enjoy your full vacation period in the Colorado Rockies. There is no limit but your own time, to the trips you can take. Denver has 252 Hotels and over 400 Mountain Resorts, at prices to fit any pocketbook.

### Write Today for Free Booklet

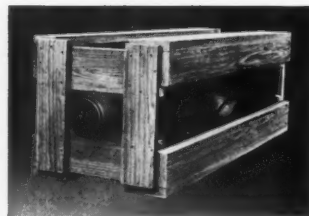
that tells what you can see, time required, cost of trips to Rocky Mountain National Park, Mesa Verde National Park, Denver's Mountain Parks, The Glaciers and 60 other short trips. Rail trips: Platte Canyon, Georgetown Loop, Moffat Road. **DENVER TOURIST BUREAU, 513 17th St., Denver, Colo.**



The crate on the left is one of several crates designed for a manufacturer of automotive axles. It takes the place of the crate shown on the right.

The advantages of the new crate are: a marked saving in lumber; a considerable decrease in weight; more rigid construction; prevention of side play; better protection for the drum; lessened labor cost.

A further instance of what Weyerhaeuser Crating Engineers are doing for shippers every day.



## Better Crates with Less Lumber

**A** YEAR'S experience with our special Crating Service has brought out one very significant fact.

It doesn't pay a concern to be too sure that its crating practices cannot be improved.

Some of the most startling savings our Crating Engineers have effected, have been made for concerns who were entirely satisfied with the containers they were using.

A year's work among many industries in many parts of the country has proved that in the great majority of cases our Crating Engineers have been able to build better crates with less lumber. And where savings in lumber have not been possible they have built stronger crates and effected other savings of equal importance.

**H**ERE in brief is the story of the two crates pictured above:

The new crate, designed to carry a 3-ton truck axle, requires 36.3 feet less lumber—a saving of 52%.

It weighs 112 pounds less than the old crate.

These two items represent a saving of \$2.02 per crate.

Labor cost is reduced approximately 50%.

The structural advantages of the new crate over the old one can readily be seen: the lock corner construction makes it stronger and more rigid; the notches in the end members prevent the side play which often weakened the old crate in transit; redesigning of the side members

affords better protection to the brake drum.

Shippers who have adopted scientific crating report other advantages—of perhaps even greater importance than factory savings. It eliminates damage claims and speeds up collections. It decreases sales resistance and so gives the salesman a new selling tool. Safe packing builds good will.

**T**HE services of Weyerhaeuser Crating Engineers are offered to executives of business concerns—by appointment on request.

There is no charge for this service. This organization feels that the position of lumber as the standard material for shipping containers imposes the obligation to deliver 100% value with every foot of lumber we sell.

For crating purposes, this organization supplies from its fifteen distributing points, ten different kinds of crating lumber, of uniform quality and in quantities ample for any shipper's needs.

A booklet, "Better Crating," which outlines the principles of crate construction and explains the personal service of Weyerhaeuser Engineers, will be sent on request to any manufacturer who uses crating lumber.

Weyerhaeuser Forest Products are distributed through the established trade channels by the Weyerhaeuser Sales Company, Spokane, Washington, with branch offices at 208 South La Salle Street, Chicago; 220 Broadway, New York; Lexington Building, Baltimore; and 2694 University Ave., St. Paul; and with representatives throughout the country.



### WEYERHAEUSER FOREST PRODUCTS SAINT PAUL • MINNESOTA

*Producers for industry of pattern and flask lumber, factory grades for remanufacturing, lumber for boxing and crating, structural timbers for industrial building. And each of these items in the species and type of wood best suited for the purpose.*





Robert J. Merrill, Concord, New Hampshire.

National Lumber Manufacturers' Association, Central Committee on Lumber Standards, Wilson Compton.

American Forestry Association, Ovid M. Butler, Forester and Secretary.

American Automobile Association, Good Roads Department, V. D. L. Robinson, Washington, D. C., and Alfred G. Seiler, Washington, D. C.

Union League Club, Conservation Committee, Chicago, Illinois.

#### THE MASSACHUSETTS ASSOCIATION TOURS

For several seasons past, during the summer months, members of the Massachusetts Forestry Association and their friends have enjoyed the well-planned and delightfully-conducted tours of our most important National Parks and National Forests that have been projected and carried out under the auspices of the association.

This year there will be two distinct tours, the usual circle tour of the principal parks and the tour to the heart of Alaska and the Canadian Northwest.

The vacation character of these tours cannot be overemphasized. It means a wonderful summer out of doors in the midst of scenery of the greatest variety and beauty. It is adapted to all ages and tastes. There is ample time to rest and ample opportunity to be strenuous, according to taste. Nearly one thousand miles of the journey is made by automobile.

Descriptive literature and itineraries of the tours may be had by addressing Harris A. Reynolds, Secretary of the Massachusetts Forestry Association, 4 Joy Street, Boston, Massachusetts.

#### COAL COMPANY AWARDS PRIZES

The prize-winner in the Lehigh Coal and Navigation Company's school contest for a good fire slogan was Miriam Fidler, of Lansford, and the slogan that won the first grand prize was: "Fires come—forests go; stop fires and forests grow." The slogan winning the second grand prize was: "A flame, a breeze—gone, the trees," by Francis Kleckner, of Summit Hill.

The contest started on March 1st and ended on March 31st, and that competition and rivalry were keen, is readily demonstrated when it was announced that there were 1,357 pupils competing. The co-operation of the principals and teachers of the schools was largely instrumental in making the contest a success. The educational benefits derived from such a competition are considerable, for much is accomplished in turning the young folks' thoughts to forest protection. Recently Governor Pinchot, of Pennsylvania, said: "Forestry is of greater consequence to the young people than it is to us older men, anyhow, for the coming timber scarcity is

even more threatening to them than it is to us. It will be at its worst when they are running the state and the nation."

Seven competitors were awarded a year's subscription to AMERICAN FORESTRY in recognition of their efforts.

### Flowering Trees and Shrubs of the Lower Rio Grande

[Continued from page 340]

tainly the most prolific. The lavender Caracal, with its quaint dog-like blossoms, called by the Mexicans Los Perritos (little dogs), and the handsome *Cuerna de Benado* (Deer's Horn), the name of which is suggested by the two stiffly pointed buds usually to be seen on either side of the lovely orchid-tinted blossoms, should also be mentioned, as also the purple Bougainvillaea, the paper flower of the Japanese.

The charming Duck Vine (*Aristolochia*), with its strange spotted blossom, when unopened looking for all the world like a duck, and the exquisite, though non-fragrant, violet, which, climbing to the top of a tall native sour-orange tree, mingling its white and purple clusters with the golden fruit of the tree, makes a sight quite as well worth traveling the 3,000 miles to see that Burroughs attests he once made to see the common mullein cultivated in a garden and called the velvet plant.

#### LUNCH BAGS CARRY FIRE WARNING

The New York State Forestry Association has done a unique and telling bit of advertising in the distribution of 200,000 paper lunch bags during the forest fire season, the aim being to place a bag with every fisherman and recreationist visiting the forests during the season. On one side of these bags is printed a vigorous statement urging the protection of the woods from fire. It is admitted that the great majority of forest fires are the direct result of carelessness, because smokers, hunters, fishermen, and campers in the woods head the list as causes of fire, and so the personal co-operation of every user of the woods is urgently requested. Undoubtedly the distribution of these bags will do much to impress the individual.

#### LARGE PLANTING ON MINNESOTA FOREST

In the National Forests of the Rocky Mountain District of the Forest Service this year all records for planting were broken when the report was made of 4,115 acres planted. The largest single planting operation in this district was in the Minnesota

## AMAWALK NURSERY

### MEMORIAL TREES

Particularly fine specimens of Oak, Maple, Elm, etc., for memorial planting. Trees from 15 to 30 feet are recommended. Each tree is recorded with the American Forestry Association to perpetuate its memory.

Amawalk, Westchester Co., N. Y.  
Tel., Yorktown 128

NEW YORK CITY OFFICE  
372 Lexington Avenue  
Tel., Vanderbilt 7691

## Orchids

We are specialists in Orchids; we collect, import, grow, sell, and export this class of plants exclusively.

Our illustrated and descriptive catalogue of Orchids may be had on application. Also special list of freshly imported unestablished Orchids.

LAGER & HURRELL  
Orchid Growers and Importers Summit, N. J.

### TREE SEEDS

Large collection of Evergreen, Tree, Shrub, and Hardy Perennial Seeds from all parts of the world.

Send for Catalogue  
CONYERS B. FLEU, JR.  
6628-30-32 Ross Street  
GERMANTOWN - PHILADELPHIA

### TREES FOR FOREST PLANTING

#### PINE :: SPRUCE

CONIFERS ONLY

Write us for price list

KEENE FORESTRY ASSOCIATION,  
KEENE, N. H.

EVERGREENS TREE SEEDS  
We specialize in growing trees for Forest Planting

THE **North-Eastern**  
**Forestry Company**  
NURSERIES SEED HOUSE  
Cheshire, Conn. Willsboro, N. Y.

### TREE AND SHRUB SEEDS

Domestic and Imported  
"WHERE QUALITY COUNTS"  
Price List on Request  
Special Quantity Prices

OTTO KATZENSTEIN & CO.  
Tree Seedsmen  
Atlanta, Georgia. Established 1897

National Forest, where 1,635 acres were planted to red pine and 95 acres to white pine. The total number of acres in this forest that have been reforested now stands at 5,606, of which 4,808 acres have passed through one or more growing seasons.

## Stewart Kidd Famous Outdoor Books

# STEWART KIDD'S GREAT FREE BOOK SPECIAL

Anyone sending in the coupon attached below ordering any two of the books here listed will be given absolutely FREE, without charge, a copy of

## THE BIG MUSKEG by VICTOR ROUSSEAU

An absorbing novel of the North. "The story moves rapidly from thrill to thrill."—Boston Evening Transcript.

### THINK OF IT! FREE—A \$2.00 POPULAR NOVEL

#### Autocamping

by F. E. Brimmer



This book is written by a pioneer automobile camper, who has lived in the outdoors beside his car for as many as five consecutive months with his family, including small children. The book is profusely illustrated and is of

a size handy for the pocket of one's coat.

\$2.00

#### The Outdoorsman's Handbook

edited by Hy. S. Watson and  
Capt. Paul A. Curtis, Jr.



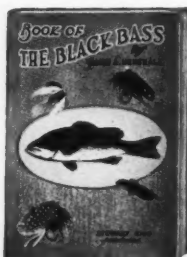
A handy reference manual of useful facts and figures on the technology of the outdoors for the hunter, angler, and wilderness traveler. Game law charts are included. Each paragraph is initiated by some well-

known authority on the subject treated.

Illustrated, \$1.50

#### Book of the Black Bass

by James A. Henshall, M. D.



Contains the complete scientific and life history of the bass, together with a practical treatise on Angling and Fly-Fishing, and a full account of tools and tackle.

New edition, Published Spring 1923

Illustrated, \$3.00

#### ADVENTURES IN ANGLING

A Book of Salt Water Fishing  
By Van Campen Heilner

Thrilling experiences with big game fishes in the Atlantic and Pacific fascinatingly told by the author of "The Call of the Surf." Illustrated in color and black and white. \$3.00.

#### THE SPORTSMAN'S WORKSHOP

By Warren H. Miller

"Will make the out-of-doors' crank's mouth water." Brooklyn Daily Eagle. Illustrated. \$1.75.

#### CAMP FIRES IN THE YUKON

By Harry A. Auer

"Of interest to hunters, naturalists, and those who enjoy well-written accounts of adventure." Illustrated. \$3.00.

#### TRAIL CRAFT

By Dr. Claude P. Fordyce

Introduction by Stewart Edward White. An aid in getting the greatest good out of vacation trips. Illustrated. \$2.50.

#### THE IDYL OF THE SPLIT BAMBOO

By Dr. George Parker Holden

Foreword by Henry van Dyke. A detailed description of the rod's building. Illustrated. \$3.00.

#### STREAMCRAFT

An Angling Manual

By Dr. George Parker Holden

"The best of all modern books on the science of trout fishing." Henry van Dyke. Illustrated. \$2.50.

#### GOIN' FISHIN'

By Dixie Carroll

Weather and Feed Facts; Fresh-Water Game Fish, Natural and Artificial Baits and their Use. Illustrated. \$3.00.

#### LAKE AND STREAM GAME FISHING

By Dixie Carroll

"A veritable encyclopedia of the fisherman's love, luck, and lore, modestly, merrily presented." Chicago Herald. Illustrated. \$3.00.

#### FISHING TACKLE AND KITS

By Dixie Carroll

"Snappy, terse, illuminating. The fine points of the game." Larry St. John. Illustrated. \$3.00.

#### BILL JOHNSTON'S JOY BOOK

Edited by William T. Johnston

2,002 Jokes, collected from every corner of the earth, classified in a topical, cross-referenced index, and illustrated by Claude Shafer. \$2.50.

#### THE COMPLETE ANGLER

By Izaak Walton

Handsome edition of the greatest fishing classic. Illustrated in full color by J. H. Thorpe. \$3.50.

#### REMINISCENT TALES OF A HUMBLE ANGLER

By Dr. Frank M. Johnson

Introduction by Dr. James A. Henshall. "The tales are varied, humorous, and replete with fishing lore." Boston Globe. \$1.50.

#### THE BOOK OF THE PIKE

By O. W. Smith

The only complete book on the American Pike written by a man who has studied and fished for pike for forty years. Illustrated. \$3.00.

#### FISHING WITH A BOY

The Tale of a Rejuvenation

By Leonard Hult

"Any boy who loves fishing, be he twelve years old or five times that number, will revel in this book." Brooklyn Daily Eagle. Illustrated. \$2.00.

#### PIGEON RAISING

By Alice Macleod

A handbook for fancier and market-breeder. \$1.50.

#### JUST HUNTIN'

By Ozark Ripley

Introduction by Dixie Carroll. Short Stories of the Gun and Rod. "Every lover of wild life will delight in the book." Providence Journal. Illustrated. \$2.00.

#### BASS, PIKE, PERCH, AND OTHER GAME FISHES OF AMERICA

By Dr. James A. Henshall

"The most comprehensive book on American game fishes published." Baltimore American. Illustrated. \$3.00.

#### CASTING TACKLE AND METHODS

By O. W. Smith

A practical book for the fisherman. Illustrated. \$3.00.

#### SONGS FOR FISHERMEN

Collected by Joseph Morris and St. Clair Adams

An Anthology of fishing verse from Shakespeare to Bridges in England, from Whittier to Guest in America. \$2.50.

#### THE FLY-FISHER'S ENTOMOLOGY

By Alfred Ronalds

First published in 1836. A new edition by H. T. Sheringham. Illustrated. \$5.00.

#### DAYS AND NIGHTS OF SALMON FISHING IN THE TWEED

By William Scrope

First published in 1843. A new edition by H. T. Sheringham. Illustrated. \$5.00.

#### THE COMPLETE DOG BOOK

By Dr. William A. Bruette

Revised edition. 92 varieties of dogs common to America and Great Britain treated from every angle by an authority of international reputation. "The outstanding dog book of the last decade." The Field (London). Illustrated. \$3.00.

### Order Form—AMERICAN FORESTRY

STEWART KIDD, Publishers and Booksellers, Cincinnati, U. S. A.

Send me the books checked and FREE copy of Big Muskeg, for which

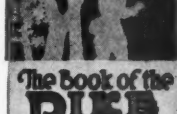
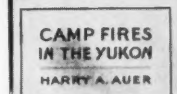
I enclose.....in payment.

-----

-----

Name .....

Address .....



### WASHINGTON FIRE LAWS IMPROVED

Eleven important additions have been made to the forest fire laws of Washington, as the result of a bill recently passed by the state legislature. Among other things, the bill provides a penalty for the violation of any of the rules and regulations made to protect the forests of the state, and it requires all railroads operating trains through forested districts to provide speeder patrol. The bill also requires any person operating a stationary engine to clear away forest material from around the setting and to take other specific precautions against the spread of fire.

Under one provision of the bill it becomes a misdemeanor for any person, during the closed season, to throw away any lighted tobacco, cigars, cigarettes, matches, or any other lighted material in any forest region of the state. Still another provision strikes at the depredations made within recent years on young forest trees for Christmas-tree purposes, and provides a penalty for such cutting.

The legislature has also passed a reforestation measure which marks real progress in forestry. This bill provides for a State Forestry Board, consisting of the Governor as chairman, the State Land Commissioner, the Dean of the College of Forestry of the University of Washington, the Director of the Department of Conservation, and the State Forester. The board is authorized to issue public utility bonds in a sum not to exceed \$200,000 for the first biennium, the money to be used to purchase logged-off lands for reforestation purposes.

An interesting feature of this bill is one giving the board authority to designate as state forests present state-owned lands more suitable for forest growth than for other purposes, and to make rules and regulations for reforesting them. The possibilities for establishing state forests on lands now owned by the state are very great. The state owns almost 1,000,000 acres of commercial mature forests.

The Washington legislature has sent a memorial to Congress petitioning for protection for 750 thousand acres of unreserved forest lands now a part of the public domain, and for a million and a quarter acres of Indian reservation forest land which receives inadequate fire protection at the present time.

An important piece of forest fire legislation was passed by the legislature but vetoed by the Governor. The section gave the Director of Conservation and Development the power to make special rules for the protection of any region of the state which he might consider a special fire hazard. An amendment to this section, excepting certain classes of owners, caused the Governor to veto it on the ground of class legislation.

For the progress shown in forest legislation much credit is due to the State Forestry Conference, which was organized in 1921

under the auspices of the Seattle Chamber of Commerce. Dean Hugo Winkenwerder, of the College of Forestry, University of Washington, is chairman of the Forestry Committee of the Chamber's State Development Bureau, and under his supervision the Forestry Conference was organized, with seven committees appointed to study the different phases of the state's forest problems.



### HAND-FED HUMMING-BIRD

Sergeant Charles Haberkorn and Orderly M. J. Maw, of the National Home for Disabled Veterans, at Sawtelle, California, believe they are the owners of the only domesticated and hand-fed humming-bird in existence. Their feathered friend is a small red-throated humming-bird that answers to the call of "Dick." Orderly Maw, who used to train birds in the tropics when he was a sailor, many years ago, suggested that they train "Dick." That they succeeded is apparent from the fact that he now takes all his meals from a medicine-dropper, either from the hands or from the teeth of his trainers. He frequently perches on their fingers while taking nourishment in the form of sweetened water or syrup from the tip of the medicine-dropper.

"The urge to active interest in our near and remote forests, the wrench from the narrow views of little inclosures, the stimulus of the sweeping currents of wind from our great reservations, should make the important work of reforestation and conservation not only richly productive in future splendid forests, but in future splendid citizens, keenly alive to all that AMERICAN FORESTRY stands for."—Abigail F. Taylor.

## SLEEP ON AIR

— IN A —

### COMFORT SLEEPING POCKET



### COMFORT SLEEPING POCKET

NOT A FILTHY SWEAT-BOX SLEEPING BAG but an IDEAL outdoor bed with air mattress and pillow enclosed within a waterproof felt-lined cover. Weighs 12 pounds and packs 8 x 8 x 25 in.

### RECOMMENDED and APPROVED

by Forest, Reclamation, and Geodetic Service of the U. S. Government

Metropolitan products have stood the test for 40 years and are recommended by thousands of reliable campers, woodsmen, automobilists, and fishermen for quality and durability.

### SATISFACTION GUARANTEED OR MONEY REFUNDED

Write today for latest catalogue

METROPOLITAN AIR GOODS COMPANY  
105 Marble Street ATHOL, MASS.

The Association's supply of October, November, and December, 1921, and October and November, 1922, copies is exhausted. It will be appreciated if members having copies of these issues, for which they have no further use, will send them to the Association. Postage will be refunded.

### CAMP MISHIKE—THE TURTLE



A Forestry Camp for Boys in Wisconsin's Woods. Definite Program of Forestry, Canoeing, Camping. Under Direct Supervision of Foresters. 1,600 Acres

—4 Miles of Shore on 3 Lakes. W. E. Sanderson, Director, P. O. Box 555, Madison, Wis. Summer Address, Camp Mishike, Winchester, Wis.

## FORESTRY TRAINING In the Heart of the Rockies The Colorado School of Forestry

A Department of Colorado College  
Colorado Springs, Colorado

Four and five-year undergraduate courses and a two-year graduate course in technical forestry, leading to the degrees of Bachelor of Science in Forestry and Master of Forestry.

Forestry teaching in spring and fall at Manitou Forest (a 7,000-acre forest belonging to the School) and the winter term at Colorado Springs.

Write for announcement giving full information.



## Whatever Your Question



Be it the pronunciation of Bolshevik or soviet, the spelling of a puzzling word—the meaning of blighty, fourth arm, etc., this Supreme Authority—

### WEBSTER'S New International Dictionary

contains an accurate, final answer. 400,000 Words, 2700 Pages. 6000 Illustrations. Regular and India-Paper Editions.

G. & C. Merriam Co., Springfield, Mass.  
Write for specimen pages, prices, etc., and FREE Pocket Maps if you name American Forestry.

## WANTED

10,000 members to nominate 10 of their friends for membership. It will take but a few minutes' time of each member and will result, according to past averages, in from 500 to 1,000 new members.

Enlist in the nomination army.

Send in your list now before you forget it.

If you can think of more than 10, so much the better. If you cannot think of 10, send in as many as possible, **BUT BE SURE TO SEND IN SOME.**

### THE AMERICAN FORESTRY ASSOCIATION

914 Fourteenth Street N. W.  
Washington, D. C.

## Send for FREE story

Interesting, illustrated folder "How to get Greater Desk Efficiency" shows how to keep your desk cleared for action. Thousands of Kleradesks are giving entire satisfaction. Saves time locating, distributing or sorting papers. Takes less space than a tray. Sent FREE trial.

# Kleradesk



Steel Sections  
ROSS-Gould Co  
232 N. 10th  
ST. LOUIS

90¢  
This model \$6.39

Free Mailing Lists  
Will help you increase sales  
Send for FREE catalog showing details covering names of your best prospective customers. Counts and prices are given on thousands of different Mailing Lists.  
99% Guaranteed 5¢ each by refund of  
ROSS-Gould Co St. Louis

## ATTENTION, FORESTERS!

AMERICAN FORESTRY will print, free of charge in this column, advertisements of foresters wanting positions, or of persons having employment to offer foresters. This privilege is also extended to foresters, lumbermen, and woodsmen who want positions, or to persons having employment to offer such foresters, lumbermen, or woodsmen.

### POSITIONS WANTED

WANTED, to communicate with party interested in Forestry to act as financial partner in developing some large tract of cheap land, must have sufficient capital, would accept straight salary, large fruit or farm proposition considered. Have made this my life work and study, short course graduate, several years' experience, logging, road-making, pruning, manager, 1,500 acre farm, orchard and forest combined. Address Box 4095, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (2-4-23)

FORESTER—Experienced graduated forester from large middle-west university. Master of Science degree in forestry. A specialist in tree diseases. At present employed in City Forestry work in city of 140,000 inhabitants, but would like change to a larger city. Have had five years of experience in eastern, middle-west, and southern sections of the country. Would prefer southern California. Address Box 5020, care AMERICAN FORESTRY, Washington, D. C. (4-6-23)

GRADUATE FORESTER would like job in Southern Appalachians or Southern Pine Region. Four years in Forest Service. One year in France lumbering with 10th Engineers. One year in state work in fire prevention, where he is now. Has worked from Pennsylvania to Alabama and in Idaho. Some agricultural experience. Address Box 5035, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (5-7-23)

GRADUATE FORESTER with 8 years of experience, both practical and technical, in the United States and Canada. Has had charge of large logging operations, estimated large areas of timberland for both buyer and seller. Open to change of employment. Best of references furnished. Address Box 5040, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (5-7-23)

WANTED—POSITION BY A FORESTER, 12 years' varied experience in northern and southern forests; ex-forest supervisor, at present secretary of forestry association. Especially competent in forest management; practical, commercial forestry; forest protection; publicity and administrative work. Desires employment by large lumber company or state forestry department. Pleasing personality, robust physique and invaluable practical experience. Address Box 5045, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (6-8-23)

### WANTED

SOLICITOR for reputable Tree Surgery Company, vicinity of New York City. Address Box 5010, care of AMERICAN FORESTRY, Washington, D. C. (3-5-23)

EXPERT TREEMEN WANTED—We will require this year a number of experienced treemen and tree surgeons at various points throughout the eastern seaboard. Please write fully your qualifications. Address Box 5030, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (5-7-23)

### A NOTABLE CONTRIBUTION TO FOREST RESEARCH

A substantial and generous endowment of \$200,000 for experimental research in forestry has just been announced. This sum is to be equally divided between the Yale School of Forestry and the Department of Forestry at Harvard. The gift is anonymous. The donor, it is stated, is deeply interested in the advance of forestry in the Northeast, and especially in New England, and the money has been granted in the belief that research and experiment in the field problems of forestry will do more than any other one thing to bring about forestry practice.

The need of forestry is now very generally recognized. Its actual practice is retarded because of the limitations of our knowledge regarding the life and growth of our trees under different conditions, and the lack of local experience in applying the methods of forestry. It is to supply the basic knowledge regarding the New England trees and forests and to enable more extensive field experiments in forest production that the generous gift of \$200,000 has been made.

The endowments have been given to Yale and Harvard because these institutions are already carrying on important work of research in connection with forests which they own or control. Yale has forest tracts in Connecticut, New Hampshire, and Vermont. The Harvard forest at Petersham, Massachusetts, constitutes a field experimental station of very great importance. Field experiments have been in progress on the Yale and Harvard forests for over fifteen years.

There are certain problems of forest research which can be worked out to a better advantage by a university than by any public agency. There are found on the technical staff of a large university men of great experience and technical knowledge. Such institutions are on a permanent basis and experiments can be carried out consistently over a considerable period of years. And a university always has the advantage of being completely independent in its selection of projects and in the conduct of its investigations.

The donor of these endowment funds to Yale and Harvard has made a contribution to forest research of very great importance, the results of which should count large in advancing the practice of forestry.

"I find AMERICAN FORESTRY very interesting to myself and other members of the family, and also have been able to use it to good advantage in my high-school class in commercial geography. It is an exceptionally attractive magazine and is doing a good work."—Sarah C. Josenhaus.





Reproduction from a painting in oil, by Frank Swift Chase, of the home of Dr. Henry Van Dyke, Princeton, N. J.

© The D. T. E. Co., Inc., 1922

## A decaying tree cannot save itself

**F**EW living things are as utterly helpless, as defenseless in themselves, as the tree when it is attacked by internal decay. It can only wait to die—unless saved by human skill.

The inside of a tree is largely dormant or semi-dormant. The active growth and life are in and immediately under the bark. The wood-cells inside of a tree cannot protect themselves from disease and decay. The bark is Nature's protection. Every wound in the bark, from whatever cause, exposes the wood-cells to disease—and decay, ceaseless and progressive decay, is almost inevitable. That is why the service of Davey Tree Surgeons is essential to the health, and perhaps the life, of your trees. Like the tooth, when decay once starts, nothing but human skill can save it.

What does Davey Tree Surgery cost? That depends entirely on the amount of work required and what portion of it the client wishes to have done. In 1922 the Davey organization served 3581 clients. 75 per cent of these paid less than two hundred dollars each—that is, from two hundred down to very small amounts. You can buy as much or as little as you want.

*Davey Tree Surgeons are near you—if you live between Boston and Kansas City or in California. Write or wire nearest office for examination of your trees without cost or obligation.*

**THE DAVEY TREE EXPERT CO., Inc., 2106 Elm Street, Kent, Ohio.**

Branch offices with telephone connections: New York, Astor Trust Building, Fifth Avenue and 42d Street; Boston, Massachusetts Trust Building; Philadelphia, Land Title Building; Baltimore, American Building; Pittsburgh, 331 Fourth Avenue; Buffalo, 110 Franklin Street; Cleveland, Hippodrome Building; Detroit, General Motors Building; Cincinnati, Mercantile Library Building; Chicago, Westminster Building; St. Louis, Arcade Building; Kansas City, Scarritt Building; Los Angeles, Garland Building; Montreal, 252 La Gauchetière, West.

Among prominent persons and institutions served by Davey Tree Surgeons are the following:

ROY A. RAINEY  
W. C. MARMON  
MRS. F. A. CONSTABLE  
MRS. ZENAS CRANE  
EDWIN FARNHAM GREENE  
ILLINOIS WATCH COMPANY  
UNIVERSITY OF CINCINNATI  
MUTUAL BENEFIT LIFE INSURANCE COMPANY  
DOMINION PARK CO., LTD.  
SISTERS OF CHARITY OF ST. VINCENT DE PAUL

*I open the window and make salute:  
"God bless thy branches and feed thy root!  
Thou hast lived before, live after me,  
Thou ancient, friendly, faithful tree."*

—Dr. Henry Van Dyke



**JOHN DAVEY**  
Father of Tree Surgery

# DAVEY TREE SURGEONS

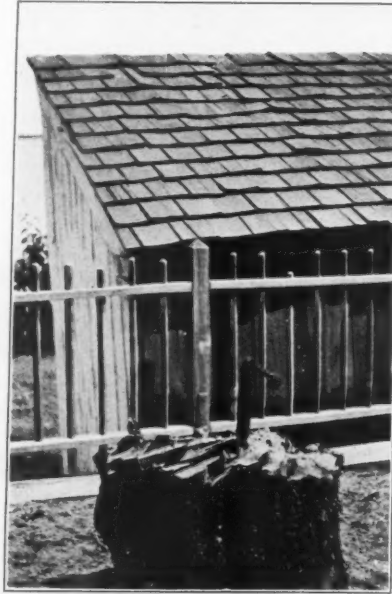
*Every real Davey Tree Surgeon is in the employ of The Davey Tree Expert Co., Inc., and the public is cautioned against those falsely representing themselves. An agreement made with the Davey Company and not with an individual is certain evidence of genuineness. Protect yourself from imposters. If anyone solicits the care of your trees who is not directly in our employ, and claims to be a Davey man, write headquarters for his record. Save yourself from loss and your trees from harm.*

### RECORD TIMBER CUT IN CALIFORNIA

Breaking all records, the 1922 timber cut of the 17 National Forests of California climbed to 217 million board feet, an increase of 73 per cent over 1921, according to report by District Forester Paul G. Redington. Receipts in payment for this timber totaled \$663,000, or an increase of 115 per cent over the preceding year. The record sale of the year was on the Lassen National Forest, where a billion feet of timber was placed under a thirty-year contract. This was the largest timber sale made in any of the 147 National Forests of the country.

"National Forest stumpage is growing in popularity among lumber owners," said the District Forester, "principally because it can be purchased on small advanced payments and because the timber sold is protected by the Forest Service from fires; 1922 was one of our best timber-sale years, and we expect to do a bigger business in 1923. The reason for this increased cut is the exhaustion of the timber supply in other regions, combined with an active lumber market, caused by the wave of home-building that is sweeping the country."

The total cut of lumber from the National Forests of California for the ten-year period 1913 to 1922, inclusive, amounted to 934 million board feet, valued at \$2,254,000 on the stump. Twenty-five per cent of the receipts from the cut of timber are returned to the counties in which the National Forests are located, and an additional 10 per cent is expended by the Forest Service on local road and trail construction.



SCYTHE INSIDE TREE

An old pear tree was cut down in the backyard of Charles W. Quynn, of Frederick, Maryland, and in the middle of the stump of the trunk was found, very tightly wedged, an old scythe blade in a very much rusted condition.

How it got there is a mystery. It is supposed that years ago the scythe was hanging on a limb and slipped down in a hollow of the trunk, lodging in the position inside the tree near the ground, where it was discovered. The tree dates back some time before the Civil War, and, as can be seen, the scythe blade is of a type no longer used.

### THE MARYLAND FIRES

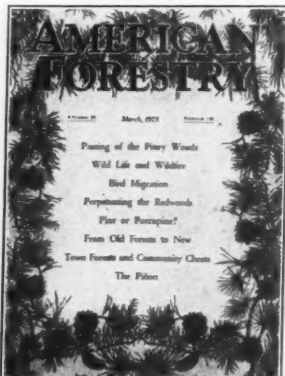
Forest fires in Maryland during April and May focused widespread public attention throughout the Southeast to the menace and destructiveness of fires in the woods. Asked for a statement of the damage done in Maryland, State Forester Besley said: "The newspaper reports have exaggerated the extent of the fires. Outside of the Catoctin Mountain section, extending from the Pennsylvania line, near Pen Mar, southwest to Harpers Ferry, fire losses have not been excessive. In this section, however, where there are large continuous areas of forest land and where the sentiment against forest fires is least developed of anywhere in the state, it has been impossible for the state fire protective organization to cope with the situation adequately. This is a section rather sparsely inhabited, in which there are a number of 'squatters' and small land-owners who derive a considerable revenue from the picking of huckleberries. The fact that most of the fires which occurred this spring were of incendiary origin and were repeatedly set out while hundreds of men were fighting fires shows the difficulty of combating them.

"Added to this, the large amount of dead chestnut throughout the region, each dead tree capable of scattering fire from a hundred yards to half a mile, with a high wind blowing at the time and extremely dry condition of the leaves, together with the difficulty of securing fire-fighters, presented obstacles that could not be readily overcome.

"The District Forest Warden and a dozen fire wardens and hundreds of helpers, many of whom were pressed into service, fought fires for days against these heavy odds, and finally won out. The complete

Every tree lover should receive the beautifully illustrated monthly magazine American Forestry. Write to the Office, 914 Fourteenth Street, Washington, D. C., for a sample copy.

PLANT TREES  
PROTECT FORESTS  
USE FORESTS



This is the only Popular National Magazine devoted to trees and forests and the use of wood.

June, 1923

### BECOME A MEMBER—SECURE SUBSCRIPTIONS FROM YOUR FRIENDS

FILL OUT THIS BLANK:—

Date \_\_\_\_\_, 1923

### THE AMERICAN FORESTRY ASSOCIATION

914 FOURTEENTH STREET N. W., WASHINGTON, D. C.

I hereby apply for membership in The American Forestry Association and enclose \$-----

#### INDICATE CLASS OF MEMBERSHIP DESIRED

- |  |          |
|--|----------|
| <input type="checkbox"/> Subscribing Membership, per year, including Magazine-----           | \$4.00   |
| <input type="checkbox"/> Contributing Membership, per year, including Magazine-----          | 10.00    |
| <input type="checkbox"/> Sustaining Membership, per year, including Magazine-----            | 25.00    |
| <input type="checkbox"/> Life Membership (no other dues for life), including Magazine-----   | 100.00   |
| <input type="checkbox"/> Patron Membership (no other dues for life), including Magazine----- | 1,000.00 |
| <input type="checkbox"/> Annual Membership, without Magazine-----                            | 1.00     |

Canadian Postage 25c extra; Foreign Postage 50c extra on subscribing memberships.

Name-----Occupation-----

Street-----City and State-----

Especially interested in articles on-----

reports are not all in as yet, but it is likely that in this one section 8,000 acres of woodland were burned over, with a loss of \$40,000. These fires have impressed the people of the state with the necessity of more adequate forest protection."



#### WASHINGTON'S PROFILE IN ROCK

Nature has shown her patriotic spirit near Chatsworth, California, where the desert meets the mountain to the north of Los Angeles. Erosion during the long ages has sculptured the "George Washington Rock," which in clear outline portrays the face of the venerated Father of His Country. It requires no keen imagination to connect the huge mass of rock, earth, and undergrowth with the stern-visaged President. This rock can be seen for many miles, as it arises abruptly out of the sagebrush and travelers journey long distances to see it.

#### KILN-DRYING DOUGLAS FIR COMMON LUMBER

The kiln-drying of Douglas fir common promises to become one of the most effective measures for conserving this material, by reducing the losses now occurring with air-drying and machining. A recent report of the Forest Service indicates that it is entirely practical to kiln-dry No. 1 common Douglas fir boards and dimension. Heretofore the kiln-drying of these grades has been held impractical because of the damage done to the lumber by the methods used. The present practice of lumber manufacturers is to air-dry Douglas fir common, or to ship it green. The saving to be gained in lower freight rates through ship-

ping dry lumber instead of partially wet lumber will not only greatly benefit the lumber manufacturer, but eventually the consuming public, and, moreover, will permit a wider distribution of this fine structural material, the report states.

In 1920 plants lying west of the Cascade Mountains in Oregon and Washington produced  $2\frac{1}{4}$  billion feet of No. 1 common Douglas fir boards and dimension, representing more than 42 per cent of the total volume of fir cut in this region. As the local market does not absorb this amount of common lumber, it becomes necessary to find markets in the great consuming centers of the East and Middle West. The Atlantic seaboard can be supplied by cargo by way of the Panama Canal, but the Middle West is reached only by rail. Since rail charges are based on weight, each pound of water removed from the lumber actually lowers the cost of transporting the lumber to the markets.

The report is based on research done by the Forest Service in co-operation with the West Coast Lumbermen's Association at the plant of the Wheeler-Osgood Company in Tacoma.

#### THE WISE "OWL" WHO TURNED FOOLISH; OR, FIRE WILL OUT

Down in — lived a certain old mountaineer with a dragging step, who wore a No. 6 shoe, and he was very wise. His name was Owl. He was out of work, too. This did not worry him much. But he needed a little money for one thing or another, which caused him to scratch his head and reason thus: "Uncle Sam has plenty of money. He spends it for fire-fighters. Why not start a little blaze, then be on hand to put it out?"

The wise old Owl's little blaze was a great success from the standpoint of providing work. Fanned by a stiff breeze, it raced up the mountain side and was only extinguished by the efforts of several hundred men. It not only burned the standing timber, but destroyed all the little trees which would have made a second crop. It blackened the mountain slope for miles around, destroyed its value for water protection and recreation purposes, and cost the people of the United States many thousands of dollars. But the wise old fellow with the dragging step pocketed his share of the pay-roll, and when nothing further happened he left off worrying about being found out.

But a sharp-eyed forest ranger on the alert for "firebugs" was puzzled by the tracks left by a No. 6 shoe propelled by a dragging step. It had zigzagged about in a most suspicious manner, with no apparent destination. It took a whole year to work up the case, but when confronted with the facts Mr. Owl "blew up" and confessed his little scheme to provide himself with pocket money.

The judge said: "Five hundred dollars fine." "I guess that is pretty high," murmured the wise (?) old Owl. "Ah," replied the judge, "but I have the last guess."

#### HOUGH'S AMERICAN WOODS

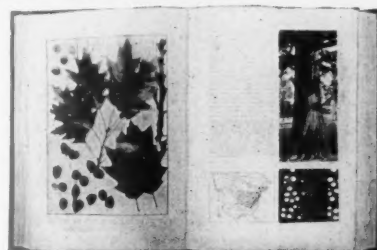
A publication illustrated by actual specimens (showing the end, "quarter" and "flat" grains of each wood) with text telling uses, properties, distributions, etc.



A volume of AMERICAN WOODS open. The plates containing the specimens go with the text into the clasped book-like cover.

#### HOUGH'S HANDBOOK OF TREES

Is photo-descriptive and enables one to identify all of the trees east of the Rocky Mountains and north of the Gulf States at any season of the year. 891 illustrations.



The HANDBOOK opened at Red Oak. Two pages facing each other are devoted to a species. "Its illustrations almost carry the scent and touch of the original."—*New York Times*.

"These books are gems and worth far more than you ask for them."—*Luther Burbank*.

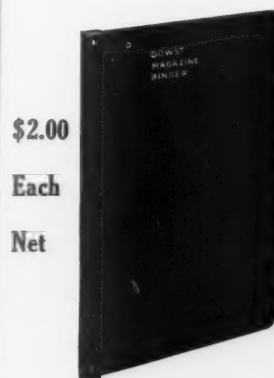
Mounds of Woods for Microscope and for Lantern, Tree-Studies for Lantern, and Greeting and other Cards of Woods of unique interest

Send for announcements and samples

ROMEYN B. HOUGH COMPANY, Lowville, N. Y.

#### Protect Your Magazines IN OUR SPECIAL BINDERS

American Forestry stamped in gold  
on cover



\$2.00  
Each  
Net

Two  
For  
\$3.50  
Net

Capacity—Twelve Issues

Issues can be bound as received  
All orders to

The American Forestry Association  
914 Fourteenth Street N. W.  
Washington, D. C.



THE  
NATIONAL ENGRAVING CO.



1305 E STREET, N.W.  
WASHINGTON, D.C.

ENGRAVERS  
DESIGNERS  
AND  
ILLUSTRATORS

3 COLOR PROCESS WORK  
ELECTROTYPES

SUPERIOR QUALITY  
& SERVICE

Phone Main 8274

Why keep a good work to yourself? Tell your friends about AMERICAN FORESTRY and you will be doing them a favor and helping the Association.

## PLEASANT THINGS WE HEAR

"Every month in the year AMERICAN FORESTRY brings me here in a New England city an escape into the vast out-of-doors, to which I belong through my membership in the American Forestry Association."—*Abigail F. Taylor.*

"I think the magazine is the best I have ever read."—*De Forest Marchbanks.*

"You are very much to be congratulated on the excellent matter which you are bringing out in AMERICAN FORESTRY and on the way in which the magazine is now being conducted."—*Prof. Ralph S. Hosmer.*

"We all enjoy AMERICAN FORESTRY greatly."—*Nelson G. McCrea.*

"Pleased to see the general change in character of your magazine. Best of luck."—*A. O. La Monte.*

"The magazine is better than it has ever been since I began taking it. May it continue to prosper."—*Caroline C. Dorman.*

"I am anxious to see AMERICAN FORESTRY every month."—*Archie W. Budd.*

"I certainly do enjoy AMERICAN FORESTRY and wish you every success."—*Mrs. James Hendrickson.*

"It is very gratifying to note a marked improvement in general in the AMERICAN FORESTRY MAGAZINE. I hope that the financial support is keeping step with the added effort made necessary to bring about the improvement."—*Solan L. Parkes.*

"The March number is one of the best the Association has issued."—*Dr. Henry S. Drinker.*

"Let me congratulate you on your success with the magazine, especially the May number, which I have just read. I think it is one of the best that has been issued."—*C. F. Quincy.*

"Mr. Carhart's article on 'What Do Tourists Want,' in the April number of AMERICAN FORESTRY is timely and valuable, since shortly the recreational world will go a-riding and the answer to this question will be foremost in the minds of the hosts that crowd the roads."—*Flora Snyder Black.*

"I consider the magazine, AMERICAN FORESTRY, one of the very best I read, and shall never want to be without it. It is of great value in connection with my Boy Scout work, and each number is read and reread many times."—*D. C. Bartley.*

"I hope that you will succeed in bringing your magazine before all lumbermen."—*F. B. Goebel, O'Neil Lumber Co.*

"AMERICAN FORESTRY is one of the best magazines our library gets."—*Charles Henry Butler.*

"Wishing success to your very valuable magazine always."—*Oscar Dimwiddie.*

### BOY SCOUTS FIGHT MARYLAND FIRES

An interesting report has been received from Benjamin Tarshes, Assistant Scoutmaster and Troop Service Officer of Troop 73, Boy Scouts of America, with regard to the participation of "The Troop with a Backbone" in combating the recent forest fires which burned so fiercely at Four Corners, Maryland, in April. It seems that Troop 63 was in camp on the Woodrow Wilson Reservation at Burnt Mills, Maryland, when they received a telephone call asking for help to fight the fire at Four Corners. Assistant Scoutmaster Stuart immediately notified Troop 73, and the two troops formed fighting brigades, the Red, White, and Blue, for work under different leaders. The troops had to march a distance of three miles before they reached the fire. After an hour's hard fighting, it looked as though the fire were under control and Troop 63 and the Fire Department left for home. Then the fire broke out anew and Troop 73 had several hours of hard and fierce fighting before it was conquered. Fire Chief Watson, of the Washington Fire Department, and Major Daniel Sullivan, of the Police Department, and the District Commissioners expressed earnest and grateful appreciation of the conspicuous service of the Boy Scouts in meeting this emergency.

AMERICAN FORESTRY IS FROM OUR PRESSES



JUDD & DETWEILER, INC.  
MASTER PRINTERS

ECKINGTON PLACE AND FLORIDA AVENUE N. E.  
WASHINGTON, D. C.



t  
.  
s  
-  
s  
.  
-  
-  
e  
-  
e  
at  
-  
ll  
at  
at  
d  
-  
"  
st  
s  
le  
ed  
t-  
op  
to  
a  
st  
r-  
at  
w  
y-  
all  
ur  
n-  
vo  
d,  
nt  
is-  
he  
ed  
nd  
or  
nd  
ed.  
ire  
of  
ict  
te-  
ice  
cy.



# YOU use the FORESTS—

When you build a HOME.

When you eat a MEAL.

When you read a NEWSPAPER.

When you go CAMPING or HUNTING.

When you drive an AUTOMOBILE.

When you ride on a TRAIN.

When you go to the MOVIE.

When you build a FIRE.

In hundreds of other things you do, you use the forest—every day—in one form or another. Abundant forests stand for a better America, a higher standard of living, happier and more prosperous homes, a greater outdoors, better fishing and hunting, more beautiful roads, more wild flowers and wild life—for all that makes for a better, cleaner, and healthier life.

YOU, Mr. American Citizen, are using your FOREST CAPITAL more than four times faster than it is being replaced. If you handled your BANK ACCOUNT in that manner, what would you leave your CHILDREN?

**WHAT ARE YOU DOING TO HELP PERPETUATE THE FOREST?**

**YOU CAN HELP.** It will take only a few minutes of your time. Urge your friends to become members of the American Forestry Association, which stands for the protection and perpetuation of American forests in a sane, conscientious way. It is the least you can do to **HELP KEEP FORESTS OUTDOORS AND IN.**

**DO THIS FOR YOUR FRIENDS, YOURSELF, AND YOUR CHILDREN.**

**IN RETURN,** they will receive **AMERICAN FORESTRY** which will interest and enlighten their whole family.

**CLIP THE APPLICATION BLANK ON PAGE 382  
AND MAKE IT COUNT FOR A MEMBER**

## Are You Taking Full Advantage of Your Membership?

Do you know that you can purchase, through your Association, practically any book published at a discount of 10 per cent?

Send us a list of the books you want, together with remittance equal to 90 per cent of the regular price and the books will be delivered to your home by parcel post. If list price is not available send deposit sufficient to cover and difference will be refunded. Members who purchase several books each month and who prefer to pay monthly may send check sufficient to cover month's purchases in advance. Check will be deposited to their credit and used as needed.

**TAKE FULL ADVANTAGE OF YOUR MEMBERSHIP AND GIVE US A LIST OF THE BOOKS  
YOU WANT**

**ORDERS AND INQUIRIES TO**

**THE AMERICAN FORESTRY ASSOCIATION**

**914 Fourteenth Street N. W.**

**WASHINGTON, D. C.**

## Yale School of Forestry

Established in 1900

The two years' technical course prepares for the general practice of forestry and leads to the degree of

*Master of Forestry.*

Special opportunities in all branches of forestry for

*Advanced and Research Work.*

For students planning to engage in forestry or lumbering in the Tropics, particularly tropical America, a course is offered in

*Tropical Forestry.*

Lumbermen and others desiring instruction in special subjects may be enrolled as

*Special Students.*

The work of the summer term at Milford, Penn., which is a part of the regular course, is open to special students with adequate preparation.

For further information and catalogue address: The Dean of the School of Forestry, New Haven, Connecticut, U. S. A.

## The New York State College of Forestry

at Syracuse University,  
Syracuse, N. Y.

Special opportunities are offered for graduate work in addition to the regular four-year undergraduate courses. These special courses lead to the degrees of Master of Forestry, Master of City Forestry, Master of Science, Doctor of Philosophy, and Doctor of Economics. A four-year course in Pulp and Paper Manufacture and a short course each spring in Dry-kiln Engineering and Lumber Grading are also given. The State Forest Experiment Station of ninety acres at Syracuse, three other experiment stations, the Roosevelt Wild Life Forest Experiment Station, a modern pulp mill, a well-equipped sawmill, a complete dry-kiln plant, the biological laboratories, and an excellent reference library offer unusual opportunities for investigative work.

Address

**FRANKLIN MOON, Dean**

## HARVARD FOREST

Petersham,  
Massachusetts

**T**WO thousand acres, ten years under management on a sustained yield. Large variety of silvicultural treatment in progress. Logging, milling and marketing annually carried on. Extensive plantations established from the forest nursery.

Specialized graduate training or research leading to the degree of Master of Forestry in the following fields: Silviculture and Management, Operation of Timberlands, Wood Technology, Forest Entomology, Dendrology, and (in co-operation with the Harvard Graduate School of Business Administration) the Lumber Business.

For further information address

**RICHARD T. FISHER**

**Director**

## Department of Forestry

### The Pennsylvania State College

Thorough training for the Profession of Forestry in four years

Courses in

**FORESTRY  
LUMBERING  
WOOD UTILIZATION  
CITY FORESTRY**

Practical work in the woods in three camps of eight weeks each, required of all students.

Two-year courses for mature students who offer practical experience in Lumbering, Forestry or other lines.

For further information address

Department of Forestry

**The Pennsylvania State College**

STATE COLLEGE, PA.

## UNIVERSITY OF MAINE

ORONO, MAINE

*Maintained by State  
and Nation*

**T**HE FORESTRY DEPARTMENT offers a four years' undergraduate curriculum, leading to the degree of Bachelor of Science in Forestry.

Opportunities for full technical training, and for specializing in problems of the northeastern States and Canada.

Complete undergraduate course in Pulp and Paper Making.

For Catalog and further information address

**JOHN M. BRISCOE**

Professor of Forestry

## School of Forestry

University of Idaho

Four-Year Course, with opportunity to specialize in General Forestry, Logging Engineering and Forest Grazing.

Forest Ranger Course, of high-school grade, covering one year of eight months.

Special Short Course, covering twelve weeks, designed for those who cannot take the time for the fuller courses.

No tuition is charged for any of the above courses, and otherwise expenses are the lowest.

Correspondence Course. A course in Lumber and Its Uses is given by correspondence, for which a nominal charge is made.

For further particulars address

**Dean, School of Forestry**

University of Idaho

Moscow, - - Idaho



=  
s  
-  
-  
y  
s  
/.

or  
f  
g  
t,  
d  
/,  
n  
ol  
e

=

y

-  
al  
-

-  
e

g  
r  
e

y  
-

A  
s  
e,  
e

o